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POLLUTION OF THE NAVIGABLE WATERS OF DADE COUNTY, FLORIDA, AND TRIBUTARIES, EMBAYMENTS AND COASTAL WATERS. PROCEEDINGS OF CONFERENCE, SESSION (3rd) HELD AT MIAMI, FLORIDA, ON JULY 2-3, 1971

Environmental Protection Agency
Atlanta, Georgia

July 1971

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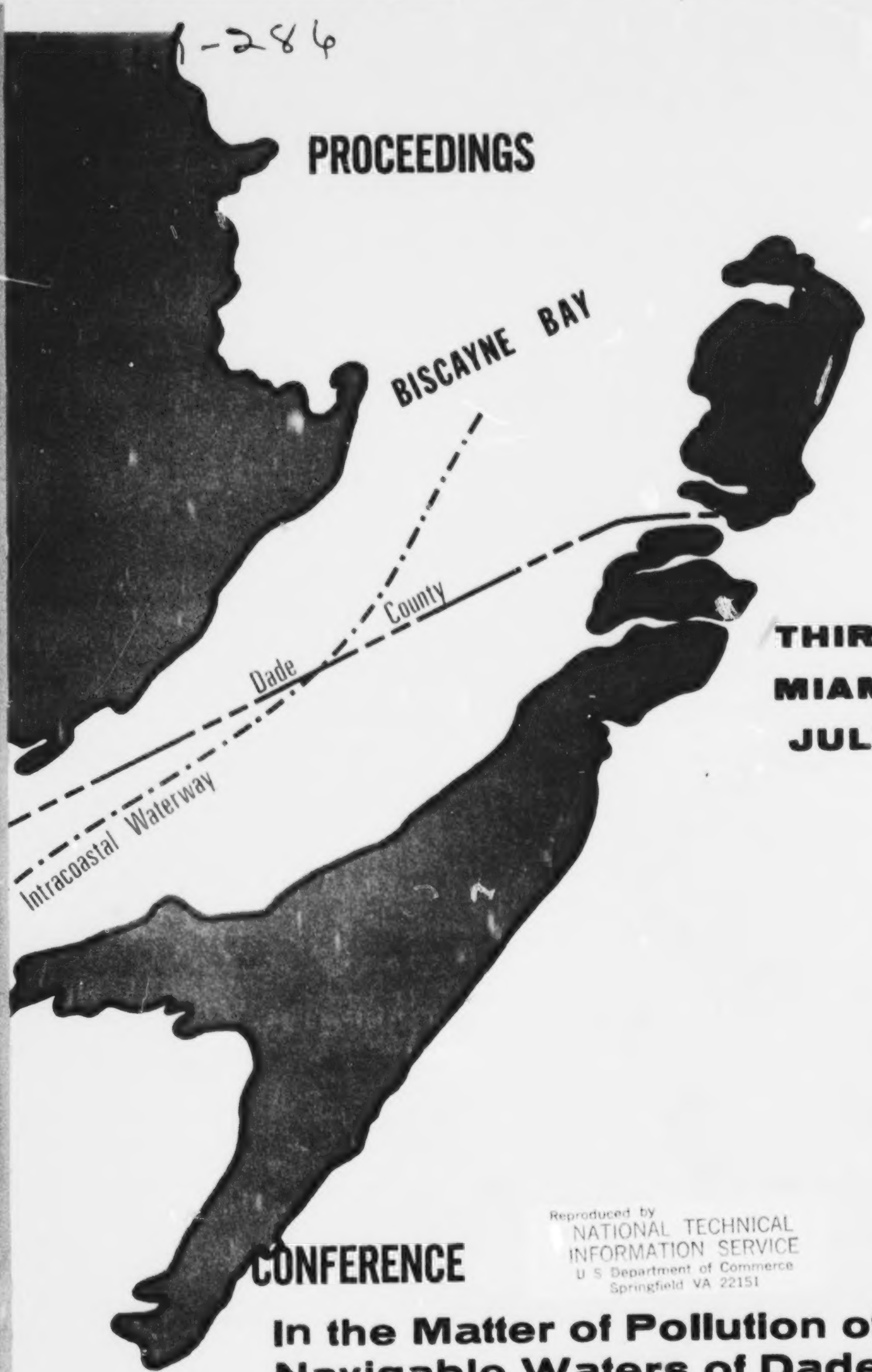
BISCAYNE BAY
Dade County
Intracoastal Waterway

THIRD SESSION
MIAMI, FLORIDA
JULY 2-3, 1971

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CONFERENCE

In the Matter of Pollution of the Navigable Waters of Dade County, Florida, and Tributaries, Embayments and Coastal Waters

ENVIRONMENTAL PROTECTION AGENCY

490

ENVIRONMENTAL PROTECTION AGENCY

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THIRD SESSION OF THE
CONFERENCE IN THE MATTER OF POLLUTION OF THE NAVIGABLE WATERS OF DADE COUNTY, FLORIDA, AND TRIBUTARIES, EMBAYMENTS AND COASTAL WATERS

- - -

Pan American Room
Sheraton-Four Ambassadors Hotel
801 South Bayshore Drive
Miami, Florida
Friday, July 2, 1971

The meeting was convened at 9:40 a.m.

PRESIDING:

John C. White, Enforcement Officer, Environmental Protection Agency, Regional Office, Atlanta, Georgia, representing Hon. William D. Ruckelshaus, Administrator, Environmental Protection Agency

CONFEREES:

David H. Levin, Chairman, Florida Department of Air and Water Pollution Control, Tallahassee, Florida

Vincent D. Patton, Executive Director, Florida Department of Air and Water Pollution Control, Tallahassee, Florida

James F. Redford, Jr., President, Florida Division, Izaak Walton League, Miami, Florida

Paul J. Traina, Director, Regional Planning Office, Region IV, Environmental Protection Agency, Atlanta, Georgia.

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PROCEEDINGS

MR. WHITE: The conference is open.

This third session of the conference in the matter of pollution of the navigable waters of Dade County, Florida, tributaries, embayments, and coastal waters, is being held under the provisions of Section 10 of the Federal Water Pollution Control Act, as amended.

Under the provisions of the Act, the Secretary of the Interior (this authority has been delegated to the Administrator of the Environmental Protection Agency) is authorized to call a conference of this type when requested to do so by the Governor of a State. In a letter dated July 21 1970, to the Honorable Walter J. Hickel, former Secretary of the Interior, former Governor Claude R. Kirk, Jr., of Florida requested that a conference be called to consider pollution of the navigable waters of Dade County.

On the basis of this request, the first conference was held on October 20-22, 1970, in Miami, Florida. A second session was held on February 18-19, 1971, in Miami to review the progress which had been made and to modify several of the recommendations developed at the first session. This third session was called based on a written request by the Honorable Reubin Askew, Governor of Florida.

As specified in Section 10 of the Act, the Florida Department of Air and Water Pollution Control has been notified of this reconvened conference.

Both the State and Federal Governments have responsibilities in dealing with water pollution control problems. The Federal Water Pollution Control Act declares that the States have primary rights and responsibilities for taking action to abate and control pollution. Consistent with this, we are charged by law to encourage the States in these activities.

At the same time, the Administrator of the Environmental Protection Agency is charged by law with specific responsibilities in the field of navigable waters. The Federal Water Pollution Control Act provides that pollution of interstate or navigable waters which endangers the health or welfare of any persons, shall be subject to abatement. This applies whether the matter causing or contributing to the pollution is discharged directly into such waters or reaches such waters after discharge into a tributary.

The purpose of the conference is to bring together the State water pollution control agency, representatives of the Environmental Protection Agency, and other interested parties to review the existing situation, and the progress which has been made, to lay a basis for future action by all parties concerned, and to give the State, localities, and industries an opportunity to take any indicated remedial action under the State and local law.

The Florida Department of Air and Water Pollution Control will be represented by Mr. David H. Levin and Mr. Vincent Patton.

The Federal conferee is Mr. Paul Traina, who is Director, Regional Planning Office, Region IV, Environmental Protection Agency.

My name is John C. White. I am the enforcement officer from the Atlanta Regional Office of the Environmental Protection Agency and the representative of Mr. Ruckelshaus.

The parties to this conference are the official State water pollution control agency and the Environmental Protection Agency. Participation in this conference will be open to representatives and invitees of these agencies and such persons as inform me that they wish to present statements; however, only the representatives of the Florida Department of Air and Water Pollution Control and the Environmental Protection Agency constitute the official conferees.

At the first conference session, the conferees unanimously recommended a program for necessary action. As previously noted the conferees at the second session unanimously agreed to modify recommendations 4, 7, 8, 9, and 10. Recommendations 1, 2, 3, 5, 6, and 11 were not modified. The conclusions and recommendations of the conferees are as follows:

1. Pollution of the navigable waters in and adjacent

to Dade County, Florida, including the Atlantic Ocean, Biscayne Bay, and tributaries thereto, which endangers health and welfare of persons, is occurring and is subject to abatement under the Federal Water Pollution Control Act. This pollution is caused by discharges from numerous municipal, domestic, and industrial sources within Dade County.

2. Measures taken to abate this pollution have been inadequate.

3. The nature of delays being encountered in pollution abatement are: complexity of the problem; lack of effective planning; financing and enforcement of pollution control law; and lack of a commitment by the community to meet the pollution problem and abate it.

4. The Metropolitan Dade County Commission's interim reports on the development of an updated master plan for Dade County to the conferees on February 18 and 19, 1971, indicate general progress. On April 13, 1971, the County Manager's Office will bring an interim progress report to the attention of the conferees. A report on the upgrading and expansion of the Virginia Key Plant will also be furnished to the conferees by April 13, 1971.

5. The cessation of all waste discharges into the inland canal system of Dade County, Florida, shall be accomplished as rapidly as possible but not later than January 1, 1973.

6. A minimum of secondary treatment, providing at least 90 percent BOD removal and year-round chlorination of the effluent, shall be provided for all waste, as required by the State of Florida before discharge to the ocean, as rapidly as possible but not later than January 1, 1974.

7. The Metropolitan Dade County Commission's response to Recommendation 7 concerning building and occupancy permit approval is vague and non-conclusive. To ensure compliance with the recommendation, the conferees require interim reports from the Dade County Pollution Control Officer. The first report is to be furnished by April 13, 1971, as to progress and problems in this vital area of concern and bimonthly thereafter.

8. Additional waste discharges to Lower Biscayne Bay, including the Biscayne National Monument, and its tributaries shall be prohibited. This same prohibition shall apply to discharges to canals in Dade County which drain to the Everglades National Park. Removal of existing municipal and industrial waste discharges from these waters shall be accomplished as rapidly as possible but not later than January 1, 1974.

The conferees recognize technical problems associated with Recommendation 8. The city of Homestead should instruct its engineers to prepare feasibility studies on disposal of treated waste effluent to the subsurface through deep well injection. Other alternatives should also be considered with the Department of Air and Water Pollution Control.

The county in cooperation with the U. S. Geological Survey and the Environmental Protection Agency should actively monitor the General Waterworks deep well system at Snapper Creek plant. The information obtained from the operation of this deep well injection system will be of fundamental guidance to the disposal of treated wastes in Dade County and should be made available to the conferees on a bimonthly basis beginning April 13, 1971.

9. All wastes from vessels used as domiciles or business establishments shall be discharged to onshore facilities. The conferees take cognizance of the regulations controlling such discharges which are currently being developed by EPA and will modify this provision accordingly when the regulations become effective. The Corps of Engineers is requested to report to the conferees by April 13, 1971, on its programs for continuing the removal of abandoned hulks, debris, and other obstructions to navigation in the Miami River.

10. Based on the inventory completed to date, the following wastewater treatment plants must be cited as being in violation of State and county standards:

Riverdale Estates
Andover Subdivision
Doral Country Club

Miami Lakes Utilities
Southern Estates Utilities
Leisure City Utilities

Peninsular Utilities	South Miami Heights
Carol City Utilities	Little Abners Trailer Park
Community Utilities	Pan American Hospital
Atomic Sewerage	

The Dade County Pollution Control Officer will report back to the conferees on remedial action taken towards compliance with State and County standards by April 13, 1971. Additionally, the Environmental Protection Agency will continue the inventory and analyses of both municipal and industrial waste sources and will give a final report with recommendations to the conferees by April 13, 1971.

11. A technical committee comprised of the Environmental Protection Agency, the State of Florida, and the Dade County Pollution Officer shall be established to develop, in cooperation with other Federal, State and local agencies, a regional water quality management plan for the conservation and reuse of the waters of Dade County. This committee shall report to the conferees as to its progress and future plans by November 1, 1971.

Our primary purpose for reconvening the conference at this time is to receive a report on the status of the inventory called for in Recommendation 10 and to receive other reports from parties who were requested to report in April of this year. We have received written reports from these parties -- namely, Dade County and the Corps of Engineers -- but will for the record receive these reports in an updated form for consideration today. This does not mean that comments with respect to any other recommendations are foreclosed. The conferees will hear any information relevant to the previous conferences and generally any new matters which may bear on the pollution of the navigable waters of Dade County.

Very briefly, I will touch on the procedures governing the handling of the conference. The conferees will be called upon to make statements. The conferees, in addition, may call upon participants whom they have invited to the conference to make statements. In addition, we shall call on other interested individuals who wish to present statements. At the conclusion of each statement, the conferees will be given an opportunity to comment or ask questions.

Everyone will be given a full opportunity to present anything that is relevant for the consideration of the conferees. I would urge that you not be repetitive and keep any presentations as brief as possible.

At the end of all the statements, we shall have a discussion among the conferees and try to arrive at a basis of agreement on the facts. Then we shall go into an executive session, following which we will make a statement for the conferees on the results of this executive session.

A record and verbatim transcript of the conference is being made by Miss Elisabeth Craft. This is being made for the purpose of aiding us in preparing a summary, and also for providing a complete record of what is said here. It usually takes several months for the transcript to come out in printed form. If you wish a record beforehand, you can check with the reporter, who is an independent contractor, and make your own arrangements with her.

I should like to indicate also that we are not printing in color. So take that into account when you make the presentation. Try not to refer to anything that relates to color.

I would like to suggest each speaker who participates come forward, state his name clearly for the reporter, and provide the reporter with a copy of any prepared statements if you have them available. Also, it would be helpful if you could give the conferees a copy.

Now, I would like to call on the Honorable Reubin Askew, Governor of Florida, for a presentation. I understand the Governor has a tight schedule and would like to attend the entire conference, but will only be able to stay for a few minutes.

Governor, we are, indeed, deeply honored to have you here. And we very much appreciate your presence.

THE HONORABLE REUBIN O'D ASKEW
GOVERNOR OF THE STATE OF FLORIDA

GOVERNOR ASKEW: Thank you very much, Mr. White.

Mr. Chairman, dinstinguished conferees, ladies and gentlemen, I would like to read to you this morning from an article which appeared last month in one of our major Florida newspapers:

"A strain of bacteria that dissolves the internal organs of animals is thriving on pollutants in Lake Apopka (and killing) wildlife in and near Florida's second largest body of fresh water....

"The lake's surface is littered with victims of last week's fish kill...18 alligators, thousands of fish and numerous birds and turtles have been found dead....

"The killer organism...has thrived in Lake Apopka because of high nutrient levels from muck farms, municipal sewage, citrus groves, citrus processing plants and debris from water hyacinths.

"Predictions are that before the summer is over, the lake's surface will be white with shad turned belly up."

Heartbreaking, isn't it?

Yet this is just one of countless tragedies which every day illustrate how man is befouling his environment and especially his water.

We have been "lucky" so far. Our abuses at Lake Apopka and elsewhere have taken only the animals, the innocent animals, so often they are the first victims of human folly.

I am happy to report to you that we have found funds,

$250,000 in State money, which will match $750,000 in Federal funds, for a total of $1 million, to try to undo some of that damage.

But the question now is what of Lake Okeechobee, our largest body of freshwater? And what of the Everglades? Of Barnes Sound? Biscayne Bay? The Gulf of Mexico? How long before the same folly brings an Apopkan-style disaster to them, and to more than a million people in Dade County?

I fear, my friends, that it could be sooner than any of us dares to believe.

Unlike the animals, we are guilty, guilty of years of thoughtlessness and neglect. But also unlike the animals, we have the ability to protect and restore, as well as to spoil and destroy.

So we have reconvened this Dade County Federal-State enforcement conference for a very simple and very urgent reason -- to head off a catastrophe from which we may never recover. We have an extraordinary team of local, State and Federal officials. But we also have here an extraordinary task.

It is said that the waters of Dade County are "grossly polluted." We have no reason to dispute that. It is said that this is true because Dade is one of the fastest-growing areas in the world. Certainly there is abundant evidence of that. And it is said that pollution is "inevitable" where growth has become so great. Perhaps this also is true, but I submit that we must challenge it. We must do everything within our power to build a peace in South Florida as well as in the rest of our wonderful State -- a peace between the people and their place, between the natural environment and the man-made settlement, between the creek and the canal, between the air and the airplane -- between the works and the life of mankind.

We have, as you know, made a beginning. At its meetings last October and February, this conference recommended that the Dade 1961 "Master Plan" for abatement of pollution be updated, that all waste discharge into the inland canal system be stopped, that secondary treatment be applied to all waste discharge into the ocean by January 1, 1973, and that all new construction in Dade County be connected to adequate sewage collection and treatment systems.

I support all of those recommendations. The day of the septic tank, which still serves more than a half-million Dade County residents, must pass. It has no place in an urban area. If we are to stop the ever-increasing pollution of our waters, we must have regional sewage treatment plants which meet the demands not only of today, but of the day after tomorrow as well.

That's expensive, and we know it. But some $47 million in Federal grants and another $100 million in State bond money should be available for antipollution facilities in Florida in the near future, and we are hoping to earmark substantial funds from both of those sources to help meet this county's awesome needs. Whether we can do so will depend in large part on the success of officials in this room and throughout the county in working together rapidly and rationally to develop and implement a new "Master Plan", one with which we all can be satisfied, one which meets the great challenges before us.

The lack of such a coordinated effort in Dade has been a stumbling block in the past. But we cannot afford to stumble now. Time is running out in South Florida and in some other parts of the State, certainly in my own county, with Escambia Bay, which is also under the jurisdiction of a State-Federal conference.

As Governor, I am determined to preserve those Florida resources which have remained clean, healthy and decent. And as Governor, I am determined to do all within my power to reclaim and restore those once beautiful pieces of Florida which have been lost to us.

It is easy, of course, to posture and to recite the new lexicon of environmental platitudes. It is more difficult and far more productive to work quietly, deliberately and thoughtfully. In that spirit, and as an adjunct to this gathering, I am calling a "Governor's Conference on the Everglades and Lake Okeechobee" to convene sometime in September. The water problems of Dade County and the Gold Coast cannot be separated from those of the Everglades and our great freshwater lake. Nor can adequate sewage treatment be planned without considering adequate water supplies. So I am asking lay and technical representatives of the cities, counties, farms, industries, State and Federal conservation agencies and the Everglades National Park to participate in the September conference.

We can no longer afford the luxury of fragmented efforts. We seek advice and assistance in making it a productive session, one which, among other things, will save the great Okeechobee from the fate of its little sister, the Apopka.

In Tallahassee, meanwhile, we are taking steps that should supplement your efforts here today. We have established the Nation's first State environmental clearinghouse for public works projects. For the first time, all of our State agencies now have an opportunity to question the environmental impact of any project before Florida, as a State, seeks Federal authorization for that project.

And speaking of public works, you may have read this week of the Cabinet's decision to halt construction on

Drainage Canal C-108 in Dade County. The canal would have carried pollutants from land reclaimed primarily for agricultural purposes and dumped them into Barnes Sound, contributing more to the diversion of the essential water from that section of Florida and the Everglades.

Our action Tuesday was probably the first time in history that the State has requested termination of an ongoing public works project for environmental reasons. We are looking at other canal projects in this area for similar reasons. I think this indicates a new day is coming in the way Florida manages her water resources.

For its part in the assault on pollution, the 1971 Legislature banned the sale of harmful detergents in Florida after 1973. At my request, the Legislature added a land reclamation tax credit to the historic phosphate severance tax which it passed last session. Also passed was a measure enabling any individual or group to file citizen-action suits against polluters. With this power, the ordinary citizen could prove a great help to our own enforcement agency, now renamed the Pollution Control Board. As you know, it was formerly known as the Air and Water Pollution Control Board, but we implemented by statute the constitutional mandate as far as noise abatement, and I don't think anyone wanted to call it the Air, Water and Noise Pollution Control Board. So we settled on a very simple name, the Pollution Control Board, which goes to every facet of our environment for which pollution can take place.

You have every right, incidentally, to be proud of this Board. I certainly am. Chairman Levin is a fair man who demands to know everything before he acts, but who then acts forcefully and wisely.

The credentials of member John Robert Middlemas, a former member of the legislature, are unimpeachable. He was, of course, the architect of Conservation 70's historic legislative achievements last year.

Jim Redford, Past President of the Florida Chapter of the Izaak Walton League, harbors no sympathy for those who callously and brutally assault that which belongs to us all.

George Ruppel, former chairman of the Pinellas County Commission, knows what indiscriminate dredging and filling can do to a community.

And Dr. A. D. Vincent, whom I have retained from the previous administration, has an acknowledged technical expertise which has proved invaluable to our efforts so far.

I expect each of these members to enforce Florida's pollution control law as if every violation were against his own property. For, in the long run, it is.

Our task is not easy. But the consequences of failure now would be intolerable. Let us work together. Let us avoid catastrophe.

Thank you, Mr. Chairman. And I am sure you would like to proceed with your hearing. And I appreciate the opportunity of sharing some of my concern in this area with this section of Florida as well as our great State. We thank you.

MR. WHITE: Thank you very much, Governor.

(Applause.)

Next, before proceeding with the formal reports by the Federal Government, I would like to call on Mr. John R. Thoman, Acting Regional Administrator for the Environmental Protection Agency in Region IV, the Southeast Region, for a brief statement.

JOHN R. THOMAN
ACTING REGIONAL ADMINISTRATOR
ENVIRONMENTAL PROTECTION AGENCY

MR. THOMAN: Mr. Chairman, conferees, during the past several months a series of misconceptions and misunderstandings have arisen in the minds of the public and their elected officials concerning the actions of this conference about ocean outfalls, levels of waste treatment required, and the desirability and/or practicality of wastewater reclamation and reuse. I wish to call to the attention of the conference certain facts to assist in clearing up these problems.

First, Florida law requires that any wastewater must receive secondary treatment prior to discharge through an ocean outfall. We in EPA fully support this requirement, and it is a requirement that must be met to qualify for Federal financial assistance in constructing waste treatment plants.

Secondly, the discharge of treated waste effluents to the inland canal system cannot be approved if Federal-State water quality standards are violated. This enforcement conference has taken cognizance of this problem and recommended no such discharges in South Dade County and the collection, treatment, and subsequent discharge to the ocean of wastewaters from the highly developed urban areas. The Administrator of the Environmental Protection Agency has accepted these recommendations.

These actions were not taken lightly or capriciously. They were based on thorough study and analysis of water quality in the area. Through studies conducted by a team working out of Fort Lauderdale for the last three years, we have reached the inescapable conclusion that the discharge of wastewaters, even when highly treated, to the inland or near-ocean waters cannot be permitted.

This, then, raises the question of ultimate discharge and disposal of the treated effluents.

This valuable source of freshwater must be conserved and reused. For several years I have personally attempted to develop with governmental bodies in this area research and demonstration projects to accomplish this aim. These efforts are continuing.

However, there is one major point that stands out when water reclamation is considered in South Florida. The resultant product cannot be used 100 percent of the time, and must be disposed of to ocean or estuarine waters. At those times of the year when freshwater is being discharged from inland, any reclaimed wastewater must also be disposed of rather than reused.

The question naturally arises as to the ultimate disposal point. We feel that it should go through an ocean outfall. There are several advantages to this method of disposal. The addition of more freshwater inland during periods when there are already large such flows from inland is absurd. Any freshwater flow to estuarine areas, when it cannot be used inland, must not be permitted.

The cost of the tertiary treatment will not be incurred when there is no use for the water inland. These are significant costs.

And, finally, most secondary treatment processes are biological, and, in common with any living process, are subject to upsets and less than acceptable performance. At such times adequate disposal to the ocean is mandatory as a safety valve.

In summary, a logical sequence of steps is to provide the best practicable secondary treatment with disposal to the open ocean and then develop waste reclamation schemes.

Mr. Chairman, other points must be clarified to make this discussion of wastewater reclamation and reuse complete.

In parts of Dade County there is significant infiltration of sea water to the sewer system. The amounts of salts in wastewater significantly affect the cost of reclamation and reuse. This infiltration must be reduced and minimized before any reclamation scheme can be successful.

Secondly, technology for wastewater reclamation and subsequent reuse is in an advanced state of development. Unfortunately, most of this has been carried out in Southern California. The application of this technology to subtropical Southern Florida must be tested.

I see no apparent bars, but any prudent engineer entrusted with spending public funds would require some favorable assurances before committing large amounts of money in huge reclamation projects. Of course, physical techniques do exist for recharge to subsurface formations, the only requirement being that the formation is porous.

Finally, and possibly the most important consideration, we do not know now requirements for the quality of water that can be safely returned to the Everglades or to ground water aquifers. These quality standards must be developed carefully so that irreversible damage is not caused. This is not an easy task, nor one accomplished overnight. Nor, should it be done on a large scale without adequate, detailed testing.

The very severe recent drought in Southern Florida has sharply brought into focus the need to conserve our most valuable resource -- water.

But this must not be done on a haphazard, hysterical basis. Nor can it all be done at one time. The sequence of events I have outlined represents a logical series of steps that will accomplish our goal.

Thank you.

MR. WHITE: Thank you very much, Mr. Thoman.

Are there any comments, questions, by the conferees?

MR. LEVIN: Mr. Thoman, do you think that the Master Plan as presented to the State Pollution Control Board yesterday encompasses the recommendations you have made here? Does it deal with these particular steps?

MR. THOMAN: I believe it does, sir, yes.

First, regionalization of facilities.

Secondly, provision of secondary treatment.

Third, disposal through ocean outfalls at least for the northern and central parts of Dade County.

And then, certainly, there are no bars to going to the consideration of tertiary treatment.

MR. LEVIN: Do you see any glaring weaknesses in the plan as presented for the abatement of this pollution problem?

MR. THOMAN: Not from what I have seen thus far. But I would like to reserve final judgment until it is presented here this morning.

MR. LEVIN: Thank you.

MR. WHITE: Any other comments, questions?

(No response.)

Thank you very much, Mr. Thoman.

Now, I will call on Mr. Traina for the Federal presentation.

MR. TRAINA: Thank you, Mr. Chairman.

Our Federal report this morning will be presented by Mr. John Hagan.

JOHN HAGAN
ENVIRONMENTAL PROTECTION AGENCY
SOUTHEAST REGION
SOUTHEAST WATER LABORATORY
TECHNICAL PROGRAMS
ATHENS, GEORGIA

MR. HAGAN: Mr. Chairman, conferees, my name is John Hagan. I am employed by the Environmental Protection Agency, the Southeast Water Laboratory, in Athens, Georgia. I should like to read for the record a portion of the report entitled "Report on Waste Source Inventory and Evaluation, Dade County, Florida." And I should like to submit the entire report for the record.

MR. WHITE: Without objection, it will be entered into the record. But, Mr. Hagan, as I understand it now, you have three volumes of this report. Is this correct?

MR. HAGAN: Yes. There is one summary report and three technical appendices.

MR. WHITE: Well, the summary report will appear in the record. The three technical appendices are too large. Certainly, we don't want to reproduce those. We will make a copy available locally. And I guess probably the best place to have one for public inspection would be with the Dade County Pollution Control Officer. We will, of course, have one on record with the State at Tallahassee and one in the

Regional Office open for inspection for anyone.

MR. HAGAN: Copies of the technical appendices will be made available to all pollution control personnel.

(The above-mentioned technical reports, marked Exhibit 1, are on file at HQ, EPA, Washington, D.C. and Region IV, Atlanta, Georgia.)

MR. HAGAN: In July 1970, the former Governor of Florida, and the Florida Department of Air and Water Pollution Control requested assistance from the Environmental Protection Agency, Office of Water Quality, in determining the water pollution abatement requirements for Dade County, Florida. A Federal-State Enforcement Conference was held on October 20, 21, and 22, 1970. The second session of the conference was held on February 18 and 19, 1971. The recommendations of these previous sessions have already been read into the record by the chairman.

The Recommendation No. 10 of the original conference specifically requested that an inventory of all municipal and industrial waste sources within Dade County would be initiated immediately by the Federal Water Quality Administration in cooperation with the State of Florida and local officials. The present report is a portion of that study.

The active participation of the Division of Field Investigations, Denver Center, and the Division of Field Investigations, Cincinnati Center, Southeast Regional Laboratory of the Florida Division of Air & Water Pollution Control, the Dade County Pollution Control Officer, is gratefully acknowledged. The Lower Florida Estuary Study Office, Fort Lauderdale, Florida, was responsible for the overall coordination of this project.

Summary and conclusions:

Seventy-six wastewater treatment plants were surveyed between November 28, 1970, and February 2, 1971. Analyses were performed to determine treatment efficiency, adequacy of bacterial disinfection and effluent loading. Technical Appendices I and II are the engineering and laboratory evaluations of each plant.

An industrial waste inventory located and identified the significant industrial waste sources. No samples were taken. Technical Appendix III contains the engineering evaluation reports for those industries visited.

Major Plants

Myrtle Grove, Palm Springs North Subdivision, Redlands Farm Labor Camp, Seaboard Industrial Park and South Dade Farm Labor Camp treatment plants achieved at least 90 percent removal efficiency for both biochemical oxygen demand (BOD) and total suspended solids (TSS).

Country Club of Miami, Atomic Sewerage, Doral Country Club, Pan American Hospital, Community Utilities and South Miami Heights treatment plants achieved 90 percent reduction of BOD but not total suspended solids.

Westwood Lakes Subdivision treatment plant achieved 90 percent reduction of total suspended solids but not BOD.

Andover, Carol City, Riverdale Estates, Golden Isles, Miami Lakes, Opa Locka Airport, Little Abner's Trailer Park, Peninsular Utilities, Southern Estates, Cutler Ridge, Bell Aire Subdivision, Homestead Air Force Base, city of Homestead, Leisure City and City of Miami (Virginia Key) did not achieve 90 percent reduction of either BOD or TSS.

North Miami and Miami Beach Ocean outfalls discharge 36.8 MGD into the Atlantic Ocean with only skimming to remove floatables.

Carol City, Myrtle Grove and Miami Lakes plants, handling 4.04 MGD with a reduction of 85.5 percent BOD and 79.6 percent TSS are to be abandoned, and their raw waste (7,619 lbs/day BOD and 8,920 lbs/day TSS) discharged into the Atlantic Ocean through the North Miami outfall.

Minor Plants

Food Fair Stores #291, Hialeah Hospital, Airport Lanes, Howard Johnson, My-Am-E Trailer Park, Jade Garden Apartments, Camp Matecumbe, Casa Granda Apartments, El Rancho Apartments, Redlands Mobile Home Park and Steak & Brew Restaurant treatment plants provide 90 percent reduction of both BOD and TSS for a total flow of 0.276 MGD.

Coast Guard Station, Del Ray Gardens, Hialeah City Hall, Holiday Inn, Midway Mall, Air Traffic Control, Blue Lake Trailer Park, Medley Mobile Park, 79th Street Shopping Center, American Hospital Supply, Country Club Gardens, Westchester Hospital, Goldberg Apartments, Ludlum Plaza Apartments, Kendale Lakes and Helman Court Apartments treatment plants provide 90 percent reduction of BOD but not TSS for a total flow of 0.354 MGD.

Palm Springs Hospital and Florida Portland Cement treatment plants provide 90 percent reduction of TSS but not BOD for a total flow of 0.019 MGD.

Shores Condominium, Dade Christian School, Barry College, Monsignor Pace High School, Palm Springs Gardens Condominium, Hialeah Convalescent Home, Kings Inn, Saratoga Springs Apartments, Queen's Inn, Miami Springs High School, Biltmore Hotel, Miller Lake Apartments, Lakeview Garden Apartments, Kendale Complex, Naval Air Station, Sweden House Restaurant and Sea Glades Motel do not provide 90 percent reduction of either BOD or TSS. Total flow is 0.246 MGD.

Minor treatment plants handle less than 1 percent of Dade County's sewage flow. Only 22 minor plants have licensed operators or are operated by licensed consultants. Most minor plants have some operational difficulty which contributes to poor treatment efficiency. Small plants require a disproportionally large amount of labor and maintenance.

Major and minor wastewater treatment plants contribute the following waste loads to the waters of Dade County:

Snake Creek Canal drainage area: 1,622 lbs/day BOD, 1,616 lbs/day TSS, 7.04 MGD.

Biscayne Canal and Little River drainage area: 366 lbs/day BOD, 407 lbs/day TSS, 1.142 MGD.

Miami River drainage area: 155 lbs/day BOD, 292 lbs/day TSS, 0.69 MGD.

Coral Gables Waterway drainage area: 267 lbs/day BOD, 588 lbs/day TSS, 2.62 MGD.

Snapper Creek Canal drainage area: 1,824 lbs/day BOD, 2,303 lbs/day TSS, 5.986 MGD.

Black Creek Canal drainage area: 862 lbs/day BOD, 2,270 lbs/day TSS, 3.53 MGD.

South Bay Area drainage area: 586 lbs/day BOD, 989 lbs/day TSS, 3.21 MGD.

Atlantic Ocean or Biscayne Bay drainage area: 54,175 lbs/day BOD, 48,588 lbs/day TSS, 77.1 MGD.

Industrial Waste Sources

An initial list of over 1,800 industries was systematically reviewed and evaluated. No industrial discharges were sampled. Rather, a list of the 89 most significant industrial waste sources was compiled and reports were prepared as a guide to further work.

Fifteen industries discharge to surface waters, 36 to ground water and 38 to municipal sewer systems.

Industrial discharges to ground and surface water in and adjacent to the Hialeah-Miami Springs well field contains toxic substances, heavy metals, oil and petroleum derivatives, acids, alkalies, suspended solids and oxygen demanding materials.

Rule 7 of the Dade County Commission provides for the control of industrial waste discharges into municipal sewer systems.

Conclusions based on the findings of this study are:

1. Municipal wastes are contaminating the waters of Dade County.

2. Twenty-one percent of the municipal waste volume from Dade County receives inadequate treatment and 77 percent receives no treatment.

3. Small plants require disproportionally high labor and maintenance and in that respect are less efficient than larger conventional treatment plants.

4. Closing Carol City, Myrtle Grove and Miami Lakes plants without providing alternative treatment will increase the overall waste discharge load.

John Hagan

5. Industrial waste discharges are contaminating the waters of Dade County.

6. Industrial wastes may be contaminating the Miami Springs-Hialeah well field.

7. Industrial wastes may have a detrimental effect on the performance of sewage treatment systems.

8. Further study of industrial waste sources is needed to determine the full extent and nature of pollution from these sources.

I would like to interject here that consequent to the preparation of this conclusion, an industrial waste survey has been conducted by the Lower Florida Estuary Study in cooperation with the State and County. It was the Field Investigations portion of that study that was completed on June 18. The laboratory analyses to support that study were completed yesterday, July 1. And we have a schedule of September 1 for the preparation of the industrial waste survey report.

I reiterate that at this time, this particular report does not include specific sampling results from industrial waste. The September 1 report will include the industrial waste.

Recommendations:

In addition to recommendations made at previous conferences, it is further recommended that:

1. By January 1, 1974, a regional collection and treatment system to serve all waste sources in Dade County be in operation to ensure secondary treatment of all wastes, with removal efficiencies of not less than 90 percent, and with discharge of treated effluents to the Atlantic Ocean, at the edge of the Gulf Stream.

2. Environmental Protection Agency make a study of existing ocean outfalls and the coastal zone with a view toward recommending more detailed ocean disposal criteria. Preliminary disposal guidelines are to be reported to the conferees by July 1, 1972.

3. Notwithstanding recommendation 1 above, no existing treatment facility should be abandoned when such action will result in a lower overall treatment efficiency. Rather the treated effluent should be discharged to the ocean outfall system until an adequate regional treatment system is provided.

4. All wastes being discharged through North Miami and Miami Beach ocean outfalls be given secondary treatment with removal efficiencies of not less than 90 percent by January 1, 1974.

5. The City of Miami, Virginia Key plant be upgraded to provide a BOD_5 and total suspended solids removal efficiency

of 90 percent. The plant be expanded to provide additional flow capacity, and the existing ocean outfall be extended to the edge of the Gulf Stream.

6. Minor plants which will remain in operation until Recommendation 1 is accomplished be required to:

a) Provide for leveling peak flows.

b) Provide multiple level digestion outlets.

c) Provide drains on all tanks to facilitate cleaning.

d) Provide and maintain reliable chlorine dosing equipment.

e) Provide and maintain flow meters.

f) Prohibit submersible pumps for feeding pressure filters.

g) Have licensed operators or be operated by licensed consultants.

h) Collect and report operational data to the Florida Department of Air and Water Pollution Control.

Mr. Chairman, that completes the paraphrased report.

MR. WHITE: Thank you, Mr. Hagan.

(The text of the complete report follows:)

REPORT OF WASTE SOURCE INVENTORY AND EVALUATION

DADE COUNTY, FLORIDA

Environmental Protection Agency
Southeast Region
Southeast Water Laboratory
Technical Programs
Athens, Georgia
June 1971

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INTRODUCTION

In July 1970, the Governor of Florida and the Florida Department of Air and Water Pollution Control requested assistance from the Environmental Protection Agency, Office of Water Quality (formerly Federal Water Quality Administration, USDI) in determining the water pollution abatement requirements for Dade County, Florida. A Federal-State Enforcement Conference held on October 20, 21 and 22, 1970, made the following recommendations:

1. Pollution of the navigable waters in and adjacent to Dade County, Florida, including the Atlantic Ocean, Biscayne Bay, and tributaries thereto, which endangers health and welfare of persons, is occurring and is subject to abatement under the Federal Water Pollution Control Act. This pollution is caused by discharges from numerous municipal, domestic, and industrial sources within Dade County.

2. Measures taken to abate this pollution have been inadequate.

3. The nature of delays being encountered in pollution abatement are: complexity of the problem; lack of effective planning; financing and enforcement of pollution control law; and lack of a commitment by the community to meet the pollution problem and abate it.

4. The Metropolitan Dade County Commission shall present a master plan for abatement of pollution from all sources in Dade County to the conferees, through the State of Florida, by November 1, 1971. This plan is to be in a form acceptable for certification under applicable State and Federal laws and regulations. The plan is to contain sufficient detail so that all significant sources are identified. The plan is to include a time schedule for construction with interim dates for arrangement of financing,

preparation of preliminary plans and specifications, preparation of final plans and specifications, award of contracts, and initiation and operation of remedial facilities.

5. The cessation of all waste discharges into the inland canal system of Dade County, Florida, shall be accomplished as rapidly as possible but not later than January 1, 1973.

6. A minimum of secondary treatment, providing at least 90 percent BOD removal and year-round chlorination of the effluent, shall be provided for all waste, as required by the State of Florida before discharge to the ocean, as rapidly as possible but not later than January 1, 1974.

7. All new construction shall be connected to adequate sewage collection and treatment systems. The conferees will meet not later than February 1, 1971, to consider the question of Dade County's building permit program with a view toward controlling additional pollution sources while the Dade County pollution abatement program is under design and construction. It is expected that the Dade County Metropolitan Commission will be prepared to present their action program to the conferees at that time which will satisfactorily meet this problem, including a program for the elimination of septic tanks in all urban areas of Dade County.

8. Additional waste discharges to Lower Biscayne Bay, including the Biscayne National Monument, and its tributaries shall be prohibited. This same prohibition shall apply to discharges to canals in Dade County which drain to the Everglades National Park. Removal of existing municipal and industrial waste discharges from these waters shall be accomplished as rapidly as possible but not later than January 1, 1974.

9. All wastes from vessels used as domiciles or business establishments shall be discharged to onshore facilities. The Corps of Engineers is requested to report to the conferees by February 1, 1971, on its program for removing abandoned hulks, debris, and other obstructions to navigation in the Miami River.

10. An inventory of all municipal and industrial waste sources within Dade County, Florida, shall be initiated immediately by the Federal Water Quality Administration in cooperation with the State of Florida and local officials, and a report shall be made to the conferees by April 1, 1971.

11. A technical committee comprised of the Federal Water Quality Administration, the State of Florida, and the Dade County Pollution Officer shall be established to develop, in cooperation with other Federal, State, and local agencies, a regional water quality management plan for the conservation and reuse of the waters of Dade County. This committee shall report to the conferees as to its progress and future plans by November 1, 1971.

Pursuant to Recommendation 10, an inventory and evaluation of municipal and industrial waste sources was conducted between November 28, 1970, and February 2, 1971. The present report together with Technical Appendicies are the result of that study.

A second session of the Federal-State Enforcement Conference held on February 18 and 19, 1971 made the following recommendations:

Recommendations 1, 2, 3, 5, 6, and 11 remain unchanged.

The recommendations which were modified are as follows:

4. The Metropolitan Dade County Commission's interim reports on the development of an updated master plan for Dade County to the Conferees

on February 18 and 19, 1971, indicate general progress. On April 13, 1971, the County Manager's Office will bring an interim progress report to the attention of the Conferees. A report on the upgrading and expansion of the Virginia Key Plant will also be furnished to the Conferees by April 13, 1971.

7. The Metropolitan Dade County Commission's response to Recommendation 7 concerning building and occupancy permit approval is vague and non-conclusive. To insure compliance with the recommendation, the Conferees require interim reports from the Dade County Pollution Control Officer. The first report is to be furnished by April 13, 1971, as to progress and problems in this vital area of concern and bi-monthly thereafter.

8. Additional waste discharges to Lower Biscayne Bay, including the Biscayne National Monument, and its tributaries shall be prohibited. This same prohibition shall apply to discharges to canals in Dade County which drain to the Everglades National Park. Removal of existing municipal and industrial waste discharges from these waters shall be accomplished as rapidly as possible but not later than January 1, 1974. The Conferees recognize technical problems associated with Recommendation 8. The City of Homestead should instruct its engineers to prepare feasibility studies on disposal of treated waste effluent to the subsurface through deep well injection. Other alternatives should also be considered with the Department of Air and Water Pollution Control.

The County in cooperation with the U. S. Geological Survey and the Environmental Protection Agency should actively monitor the General Waterworks deep well system at Snapper Creek Plant. The information obtained from the operation of this deep well injection system will be of fundamental guidance to the disposal of treated wastes in Dade County and should be made available to the Conferees on a bimonthly basis beginning April 13, 1971.

9. All wastes from vessels used as domiciles or business establishments shall be discharged to onshore facilities. However, the Conferees take cognizance of the regulations controlling such discharges which are currently being developed by EPA and will modify this provision accordingly when the regulations become effective. The Corps of Engineers is requested to report to the Conferees by April 13, 1971, on its program for continuing the removal of abandoned hulks, debris, and other obstructions to navigation in the Miami River.

10. Based on the inventory completed to date, the following wastewater treatment plants must be cited as being in violation of State and County standards:

Riverdale Estates
Andover Subdivision
Doral Country Club
Miami Lakes Utilities
Southern Estates Utilities
Leisure City Utilities
Peninsular Utilities
Carol City Utilities
Community Utilities
Atomic Sewerage
South Miami Heights
Little Abner's Trailer Park
Pan American Hospital

The Dade County Pollution Control Officer will report back to the Conferees on remedial action taken towards compliance with State and County standards by April 13, 1971. Additionally, the Water Quality Office will continue its inventory and analyses of municipal and industrial sources and will give a final report with recommendations to the Conferees on April 13, 1971.

Authority

Authority for this study is derived from Section 10 and Section 5 (b) of the Federal Water Pollution Control Act, as amended.

Acknowledgements

The active participation of Division of Field Investigations - Denver Center and Cincinnati Center; Southeast Regional Laboratory of the Florida Division of Air & Water Pollution Control; and Dade County Pollution Control is gratefully acknowledged. The Lower Florida Estuary Study Office, Ft. Lauderdale, Florida, was responsible for the project.

Explanatory Comments

The Goulds-Perrine wastewater treatment plant is under construction. It is a 2 MGD contact stabilization plant with pressure filters and phosphate removal, aerobic digester and sludge drying beds. Effluent will discharge into Black Creek.

Fair Havens, Virginia Gardens Apartments, Palmetto General Hospital, and Caravel West Apartments treatment plants began operation after the survey was completed. The treatment processes employed at these plants and other pertinent information are presented in Table 2, but inspection reports and chemical analysis could not be done.

Twelve treatment plants listed in the Supplement to Metropolitan Dade County 1961 Master Plan for Sanitary Sewage, January 15, 1971, are not included in this report for the following reason:

AeroJet General Corporation	Company closed.
Burdines, Hialeah	Waste to North Miami ocean outfall.
Coastal Towers	Waste to Miami Beach ocean outfall.

Eastern Shores	Waste to ocean outfall.
K-Mart, Hialeah	Waste to North Miami ocean outfall.
Kings Point Apartments	Waste to ocean outfall.
Lake Cecile, Hialeah	Waste to North Miami ocean outfall.
Palm Spring Shopping Center, Hialeah	Waste to North Miami ocean outfall.
Sheraton Beach Hotel	Waste to ocean outfall.
Interama	In planning stage.
Metro North Dade	In planning stage.

SUMMARY AND CONCLUSIONS

Seventy-six wastewater treatment plants were surveyed between November 28, 1970 and February 2, 1971. Analyses were performed to determine treatment efficiency, adequacy of bacterial disinfection and effluent loading. Technical Appendices I and II[1/] are the engineering and laboratory evaluations of each plant.

An industrial waste inventory located and identified the significant industrial waste sources. No samples were taken. Technical Appendix III[1/] contains the engineering evaluation reports for those industries visited.

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Myrtle Grove, Palm Springs North Subdivision, Redlands Farm Labor Camp, Seaboard Industrial Park and South Dade Farm Labor Camp treatment plants achieved at least 90% removal efficiency for both biochemical oxygen demand (BOD) and total suspended solids (TSS).

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[1/] Published separately in limited edition.

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Restaurant and Sea Glades Motel do not provide 90% reduction of either BOD or TSS. Total flow is 0.246 MGD.

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Rule 7 of the Dade County Commission provides for the control of industrial waste discharges into municipal sewer systems.

Conclusions based on the findings of this study are:

1. Municipal wastes are contaminating the waters of Dade County.
2. Twenty one percent (21%) of the municipal waste volume from Dade County receives inadequate treatment and 77% receives no treatment.
3. Small plants require disproportionally high labor and maintenance and in that respect are less efficient than larger conventional treatment plants.
4. Closing Carol City, Myrtle Grove and Miami Lakes plants without providing alternative treatment will increase the overall waste discharge load.
5. Industrial waste discharges are contaminating the waters of Dade County.
6. Industrial wastes may be contaminating the Miami Springs-Hialeah well field.
7. Industrial wastes may have a detrimental effect on the performance of sewage treatment systems.

8. Further study of industrial waste sources is needed to determine the full extent and nature of pollution from these sources.*

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* Industrial waste survey completed in June 1971.

RECOMMENDATIONS

In addition to recommendations made at previous conferences, it is further recommended that:

1. By January 1, 1974, a regional collection and treatment system to serve all waste sources in Dade County be in operation to ensure secondary treatment of all wastes, with removal efficiencies of not less than 90 percent, and with discharge of treated effluents to the Atlantic Ocean, at the edge of the Gulf Stream.

2. Environmental Protection Agency make a study of existing ocean outfalls and the coastal zone with a view toward recommending more detailed ocean disposal criteria. Preliminary disposal guidelines are to be reported to the Conferees by July 1, 1972.

3. Notwithstanding recommendation 1 above, no existing treatment facility should be abandoned when such action will result in a lower overall treatment efficiency. Rather the treated effluent should be discharged to the ocean outfall system until an adequate regional treatment system is provided.

4. All wastes being discharged through North Miami and Miami Beach ocean outfalls be given secondary treatment with removal efficiencies of not less than 90 percent by January 1, 1974.

5. The City of Miami, Virginia Key plant be upgraded to provide a BOD_5 and total suspended solids removal efficiency of 90 percent. The plant be expanded to provide additional flow capacity, and the existing ocean outfall be extended to the edge of the Gulf Stream.

6. Minor plants which will remain in operation until recommendation #1 is accomplished be required to:

a) Provide for leveling peak flows,

b) Provide multiple level digestion outlets,

c) Provide drains on all tanks to facilitate cleaning,

d) Provide and maintain reliable chlorine dosing equipment,

e) Provide and maintain flow meters,

f) Prohibit submersible pumps for feeding pressure filters,

g) Have licensed operators or be operated by licensed consultants, and

h) Collect and report operational data to the Florida Department of Air and Water Pollution Control.

MAJOR MUNICIPAL WASTE SOURCES

Twenty-seven major municipal wastewater treatment plants and two ocean outfalls were surveyed between November 28, 1970 and February 2, 1971. The location of each facility is shown in Figure 1. Twenty four-hour composite samples were collected from influent and effluent, each facility using automatic samplers. Laboratory analyses were conducted on influent and effluent for 5-day biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), total suspended solids (TSS), volatile suspended solids (VSS), total organic carbon (TOC), and settleable solids (SS). In addition, effluent samples were analyzed for nitrogen compounds, total phosphorus, and chlorides. Daily grab samples of the effluent after chlorination were analyzed for chlorine residual, pH, and total coliform bacteria and fecal coliform bacteria. Temperature and pH were measured in the field.

An inventory of major municipal wastewater sources is given in Table 1. Design information was obtained from the plant management,and, where possible, laboratory results were discussed with plant operators. Evaluation reports for each major waste source are included in Technical Appendix I. (Separate publication)

Five plants were operating satisfactorily. Six plants were hydraulically overloaded, but removal efficiencies were affected in only three of these plants. Flow meters malfunctioned in six plants; seven did not provide adequate chlorination; five require additions to or enlargement of treatment facilities.

Tables A-1 through A-5 provide detailed information on average influent and effluent concentrations, removal efficiencies, and effluent loads for the various parameters. Table 2 is a summary of discharged loads for each drainage basin. A discussion of significant problems associated with the individual waste sources in each drainage area, follows:

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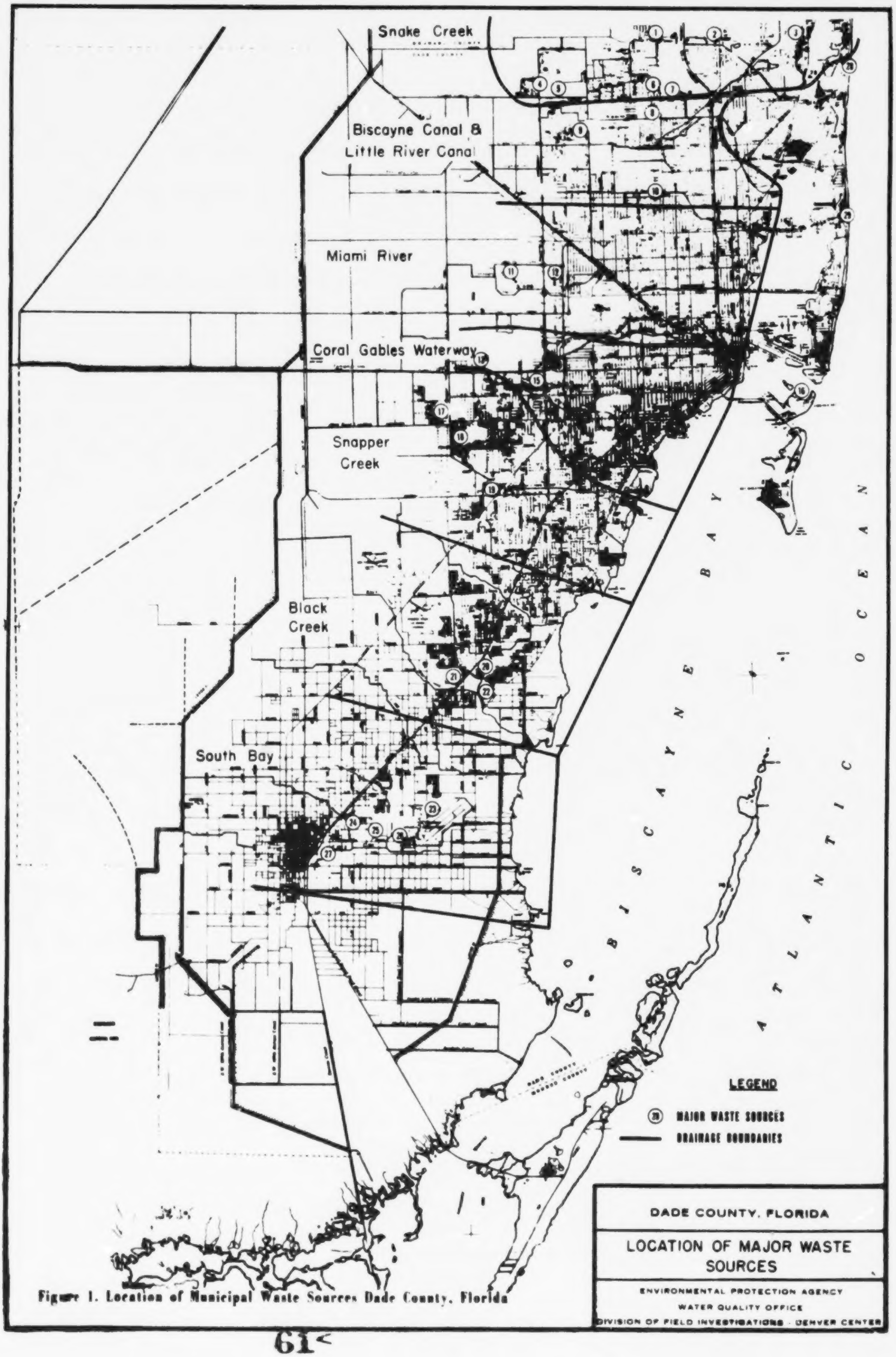

Snake Creek
Biscayne Canal & Little River Canal
Miami River
Coral Gables Waterway
Snapper Creek
Black Creek
South Bay
BISCAYNE BAY
ATLANTIC OCEAN
LEGEND
MAJOR WASTE SOURCES
DRAINAGE BOUNDARIES
DADE COUNTY, FLORIDA
LOCATION OF MAJOR WASTE SOURCES
ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY OFFICE
DIVISION OF FIELD INVESTIGATIONS - DENVER CENTER

Figure 1. Location of Municipal Waste Sources Dade County, Florida

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida

Map Key 1/	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population Served	Removal Efficiency % BOD	Type of Treatment 2/	Effluent Discharged to	Remarks and Abatement Needs
	Snake Creek Drainage							
2	Andover NW 2nd Ave. and 200th St.	1.700	1.714	3,600	84.0	Comm., comp. mix act. sludge, microstrainer, 2-stage aerobic digestor, sludge dewater	Snake Creek	Correction of flow meter.
6	Carol City 3801 NW 131st St.	3.500	2.030	17,000	82.5	Comm., pri. clar., comp. mix act. sludge 2-stage aerobic digestor, liquid sludge disposal	Carol City Canal	Plant scheduled to be abandoned during 1971.
1	Riverdale Estates 3150 NW 208th Terrace	0.875	0.362	3,500	85.6	Comm., comp. mix act. sludge, aerobic digestor liquid sludge, disposal	Snake Creek	Additional treatment facilities.
3	Golden Isles 2459 NE 204th St.	0.500	0.642	6,000	82.4	Prechlorination, cont. stab., reaeration, (diffused air) 2-stage aerobic digestor, sludge drying	Oleta River	Enlargement of facilities, additional facilities, improved chlorination.
7	Myrtle Grove - City of N. Miami Beach NW 179 St. and NW 21st	4.000	1.645	21,000	91.8	Grit chamber, pri. clar., comp. mix act. sludge, anaerobic digestor, liquid sludge disposal	Carol City Canal B	Plant scheduled to be abandoned during 1971.
5	Country Club of Miami 6801 NW 186th St.	0.200	0.185	2,000	94.5	Bar screening, cont. stab., reaeretion (diffused air), 2-stage aerobic digestor, liquid sludge	77th Ave. Canal	Improved lagoon maintenance.
4	Palm Springs North S.D. 7900 NW 178th St.	0.750	0.447	6,000	92.3	Bar screen, pri. clar., act. sludge (diffused air), Jetflo system, anaerobic digestor, sludge drying beds	77th Ave. Canal	None

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key 1/	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population Served	Removal Efficiency % BOD	Type of Treatment 2/	Effluent Discharged to	Remarks and Abatement Needs
	Biscayne Canal and Little River Canal Drainage							
9	Miami Lakes Utilities 14045 NW 67th Ave.	0.950	0.727	1,330	79.8	Comm., diffused air, reaeration, aerobic digestor, sludge disposal	138th Street Canal	Plant scheduled to be abandoned during 1971.
10	Seaboard Industrial Park NW 112th St. and 36th Ave.	0.174	0.117	NA 3/	95.0	Bar screen, comp. mix. act sludge aerobic digestor, sludge drying beds	Little River Canal	None.
8	Opa Locka Airport - Dade County Port Authority	1.500	.133	NA 3/	82.0	Bar screen, pri. clar., trick filter, aerobic digestor, sludge drying beds	Biscayne Canal	Improved chlorination, improved lift stations.
	Miami River Drainage							
12	Atomic Sewerage 6900 NW 58th St.	0.072	0.024	NA 3/	89.9	Surge tank, pri. clar., diffused air, 3-cell. oxid. lagoon, anaerobic digestor, sludge drying beds	F.E.C. Canal	None.
11	Doral Country Club NW 50th St. and 92nd Ave.	0.170	0.215	1,500	90.1	Diffused air, reaeration, aerobic digestor, sludge drying beds	Dressels Dairy Canal	Addition of flow meter, improved chlorination, operator training, improved laboratory.
	Coral Gables Waterway							
13	Lil' Abner Trailer Park 11155 W. Flagler St.	0.150	0.072	1,600	84.1	Comm., diffused air, reaeration, oxid. lagoon, aerobic digestor, liquid sludge disposal		Improved laboratory, operator training.
14	Pan American Hospital 5959 NW 7th St.	0.036	0.030	NA 3/	97.8	Surge tank, diffused air, equal. tank, Jetflo system, liquid sludge disposal	Tamiami Canal	Additional treatment facilities.

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key1/	Name of Source and Address	Actual Flow		Population served	Removal Efficiency % BOD	Type of Treatment2/	Effluent Discharged to	Remarks and Abatement Needs
		Design	Actual					
15	Community Utilities 7811 SW 23rd St.	2.050	2.471	21,800	94.4	Pri. clar., comp. mix act. sludge, liquid sludge disposal	Feeder Canal to Coral Gables Waterway	Plant scheduled to be abandoned during 1971.
	Snapper Creek Drainage							
19	Peninsular Utilities SW 97th Ave. and Kendall Dr.	3.000	2.500	25,700	89.5	Comm., pri. clar., comp. mix act. sludge, sludge thick. tank, 2-stage aerobic digestor, liquid sludge disposal	Snapper Creek	None.
17	Southern Estates 11955 SW 34th St.	1.050	1.428	2,500	76.1	Comm., comp. mix act. sludge, 30% to clar., trick. filter aerobic digestor, sludge drying beds	Feeder Canal to Snapper Creek	Elimination of infiltration
18	Westwood Lakes 4801 SW 117th Ave.	2.6	1.970	22,700	74.0	1. pri. clar., trick. filt. 2. Comp. mix act. sludge, stabilization tank, 2-stage aerobic, liquid sludge disposal	Snapper Creek	Improved operation.
	Black Creek Drainage							
21	South Miami Heights SW 117th Ave. and U.S. Hwy. 1	1.750	1.089	13,000	92.2	Comm., pri. clar., diffused air, 2-stage aerobic digestor, liquid sludge removal	Feeder Canal to Black Creek	Additional flow meter, outfall modification.
22	Cutler Ridge Anchor Road and Puerto Rico Terrace	4.000	2.195	20,000	86.5	Comp. mix act. sludge, 2-stage aerobic digestor sludge drying beds	Bell-Aire Canal	Improved chlorination
20	Bell-Aire S.D. Quail Roost and U.S. Hwy. 1	0.525	0.423	5,000	77.8	Comm., grit chamber, pri. clar. tick. filter, microstrainer, sand filter, aerobic digestor, liquid sludge disposal	Bell-Aire Canal and subsurface	Improved chlorination.

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key1/	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population served	Removal Efficiency % BOD	Type of Treatment2/	Effluent Discharged to	Remarks and Abatement Needs
	South Bay Drainage							
23	Homestead Air Force Base Homestead Air Force Base	1.150	2.116	2,000	63.7	Pri. clar., trick. filt., anaerobic digestor, sludge drying beds	Military Canal	Elimination of infiltration, operator training, improved laboratory support, additional treatment facilities.
27	City of Homestead SW 328th St. and U.S. Hwy. 1	1.950	0.393	10,000	82.7	1. Pri. clar., trick. filt. 2. Diffused air, anaerobic, aerobic digestors, sludge drying beds	C-103 Canal	Calibration of flow measuring device.
26	South Dade Labor Corp. SW 312th St. and SW 147th Ave.	0.100	0.126	1,350	93.9	Imhoff tank, trick. filter, microstrainer	Feeder Canal to C-103 Canal	Flow meter modification laboratory facilities, improved chlorination, operator training. Plant design review.
24	Redlands Labor Camp 29355 S. Federal Hwy.	0.100	0.057	1,250	90.6	Imhoff tank, trick. filter, microstrainer	Subsurface	Repositioning of flow meter, laboratory facilities, improved chlorination, operator training plant design review.
25	Leisure City Kings Hwy. and Naraja Road	0.630	0.296	9,000	86.8	Comm., mech. aeration, re-aeration, sand filters, 2-stage aerobic digestor sludge drying beds	Subsurface	Improved operation.
	Atlantic Ocean							
10	Virginia Key-City of Miami Virginia Key	47.00	46.30	500,000	79.3	Aerated grit chamber, diffused air high-rate act. sludge, sludge drying beds	Biscayne Bay	Additional treatment facilities, improved chlorination. Additional treatment.

Table 1.--Summary of Inventory Information and Abatement Needs for Major Waste Treatment Plants in Dade County, Florida--Continued

Map Key[1]	Name of Source and Address	Actual Flow Design	Actual Flow Actual	Population Served	Removal Efficiency % BOD	Type of Treatment[2]	Effluent Discharged to	Remarks and Abatement Needs
28	North Miami	-	-	-	-	Preliminary Treatment[4]	Atlantic Ocean	Additional Treatment
29	Miami Beach	-	-	-	-	Preliminary Treatment[4]	Atlantic Ocean	Additional Treatment
	Sunny Isles[5]	-	-	-	-	Preliminary Treatment[4]	Atlantic Ocean	Additional Treatment

1/ Refers to numbered locations shown in Figure 1.
2/ Includes secondary clarification and disinfection.
3/ Not applicable.
4/ Preliminary Treatment consists of skimming floatable solids in a primary clarifier. The settled sludge is recombined with the supernatant.
5/ Discharges through North Miami outfall.

Table 2.--Total Loads of Pollutants Discharged by Major Municipal Waste Sources, Dade County, Florida

Drainage System	Number of plants	Flow MGD	BOD lb/day	COD lb/day	TSS lb/day	VSS lb/day	TOC lb/day	Kjeldahl N lb/day	Ammonia N as N lb/day	Organic N as N lb/day	NO_2+NO_3 as N lb/day	Total P lb/day
Snake Creek Drainage	7	7.025	1,553	5,722	1,615	1,868	1,708	1,060	884	176	227	582
Biscayne Canal and Little River Drainage	3	1.027	344	2,629	366	214	461	119	92	29	48	101
Miami River Drainage	2	.239	75	416	135	101	114	23	11	12	3	15
Coral Gables Waterway	3	2.579	264	1,270	571	454	352	331	312	20	94	159
Snapper Creek Drainage	3	5.898	1,814	5,610	2,291	1,947	1,723	1,001	856	150	14	493
Black Creek Drainage[1/]	3	3.453	857	2,287	2,264	1,993	860	408	327	81	29	322
South Bay Drainage[1/]	3	3.135	575	1,998	948	403	632	178	125	52	163	219
Atlantic Ocean	3	77.100	54,164	220,441	48,561	54,558	35,402	13,105	9,263	3,842	32	5,108

[1/] does not include plants discharging to ground water.

Snake Creek Drainage

The Andover wastewater treatment plant provided 84% reduction of BOD_5 and 83 % reduction of total suspended solids. This plant is hydraulically overloaded at peak flows because of infiltration in the collection system. Scum and heavy foam from the aerators are carried over into the microstrainer. Laboratory results vary widely, indicating inconsistent operation.

Daily BOD removal efficiencies at the Carol City wastewater treatment plant varied from 73.5 % to greater than 97.3 %, and suspended solids removal efficiencies varied from 61.3 % to 91.5%. Standard procedure was to operate only three of four mechanical aerators in each aeration tank. Chlorination of the influent was practiced during part of the survey. Analysis by plant personnel indicated inadequate aeration when operating only three mechanical aerators and inadequate settling in the secondary clarifiers. Four mechanical aerators are now reportedly operating in each aeration tank, and alum is introduced prior to the secondary clarifiers to improve settling. No retesting by EPA has been done nor is any anticipated.

The Riverdale Estates wastewater treatment plant provided an average of 85.6% reduction of BOD_5 and 32.6% reduction of total suspended solids. This plant received a strong waste --- BOD_5 of 456 mg/1 and total suspended solids of 369 mg/1. Chlorine residuals averaged 6.8 mg/1 and average pH of the effluent was 4.6 (excessive chlorination). Operating adjustments should be made to compensate for the strong waste and reduce chlorination to an effective level which will not alter the pH.

Although the Myrtle Grove wastewater treatment plant received an estimated 0.25 MGD of industrial waste which in the past have interfered with treatment, 90% BOD_5 and suspended solids removals were measured during the survey.

Major Industrial Wastewater Discharges to the
Myrtle Grove Wastewater Treatment Plant

Industry	Products or Processes	Water Use[1/] Gallons per Month
Aluminine, Inc.	Aluminum grills	184,000
Anodyne	Lithograph and silk screens	930,000
Atlas Metal Industry, Inc.	Computer and Food Processing Equipment	808,000
Miller Industry, Inc.	Aluminum sliding doors grills, etc.	325,000
Perkins Marine Lamp & Hardware Corp.	Marine Hardware	1,379,000
Sealtest Food Products	Dairy Products	3,087,000
Velda Farms	Dairy Products	--

[1/] Water use figures supplied by the North Miami Beach Utilities, Water Department.

The Golden Isles waste treatment plant provided 82% and 80% removal of BOD_5 and suspended solids, respectively. This plant was hydraulically and organically overloaded. Designed for a daily flow of 0.5 MGD and a BOD loading of 850 pounds per day, the plant was receiving an average flow of 0.642 MGD and a BOD_5 load of 1,000 pounds per day.

The Country Club of Miami wastewater treatment plant provided 95% reduction of BOD_5. A private laboratory reported 90% reduction of total suspended solids in the mechanical treatment plant. Lower Florida Estuary Study testing showed 85% reduction of TSS based on effluent from the polishing pond. This difference is probably due to the growth of algae in the pond.

The Palm Springs North wastewater treatment plant provided 93% reduction of BOD_5 and 98% reduction of total suspended solids from an average daily flow of 0.45 MGD.

The Carol City and Myrtle Grove plants are to be abandoned in 1971, and their raw wastes diverted to the North Miami ocean outfall. The BOD_5 loading to Snake Creek will be reduced by approximately 800 pounds per day, with proportionate reductions in other pollutants. Abandonment of these treatment plants is inconsistent with the Conference recommendation that a minimum of secondary treatment, with at least 90% BOD_5 removal and year-round chlorination of effluent, be provided all waste before discharge to the ocean. The North Miami discharge has no treatment other than skimming. These two plants should remain in operation with their treated effluent discharged through the ocean outfall until other provisions for adequate treatment are made.

Biscayne Canal and Little River Drainage

The Miami Lakes Utilities wastewater treatment plant removed 79.8% BOD_5 and 70.9% suspended solids. This plant received industrial wastes from 21 industries in the Miami Lakes Industrial Park. At the time of the survey, plant management had no assessment of the quality or quantity of the industrial fraction. Subsequently, steps have been taken to improve operations and to pretreat certain industrial wastes.

The Seaboard Industrial Park wastewater treatment provided an average of 95% reduction of BOD_5 and 95.2% reduction of total suspended solids from a flow of 0.12 MGD.

The Opa Locka Airport wastewater treatment plant provided 82% reduction of BOD_5 and 87 % reduction of total suspended solids from a flow of 0.18 MGD. The effluent carried no chlorine residual and bacteria population densities averaged 640,000 per 100 ml of total coliform bacteria and 155,000 per 100 ml of fecal coliform bacteria.

All three of these plants are to be abandoned and the raw waste diverted to the North Miami outfall. Such action is inconsistent with the Conference recommendation of a minimum of secondary treatment prior to ocean disposal. These plants should remain in operation with their treated effluent discharged to the ocean outfall until other provisions for adequate treatment are made.

Miami River Drainage

The Atomic Sewerage plant has an activated sludge process designed to process septic tank pump-out waste. Incoming waste strength averaged 1126 mg/1 BOD_5 and 1,348 mg/1 TSS. Removal efficiency averaged 90% for BOD_5 and 89% for total suspended solids.

The Doral Country Club wastewater treatment plant provided 90% reduction of BOD_5 and 57.6% reduction of total suspended solids. Treated effluent flow into a lake on the Club property and was subsequently used to irrigate the golf course. Dried sludge was used for fertilizer.

The Little Abner's Trailer Park wastewater treatment plant obtained 84% reduction of BOD_5 and 79% reduction of total suspended solids from a flow of 72,000 gallons per day.

The Pan American Hospital wastewater treatment plant provided 97.8% reduction of BOD_5 and 60% reduction of total suspended solids. Erratic suspended solids removal was caused by carryover of a floc formed in the chlorine contact chamber after chlorination. Modifications to permit chlorination prior to tertiary treatment were being made in an attempt to correct this problem. No current information on the results of that attempt are available.

Coral Gables Waterway Drainage

The Community Utilities wastewater treatment plant discharged 230 pounds per day BOD_5 and 499 pounds per day suspended solids to the Coral Gables waterway. A BOD_5 reduction of 94.4% was being achieved. This plant is to be abandoned, with the raw waste flowing to Virginia Key.

Snapper Creek Drainage

The Peninsular Utilities plant removed 89.5% BOD_5 and 88.9% suspended solids from a 2.5 MGD flow. In early 1971, the plant initiated a deep-well injection system.

Low removal efficiencies by the Southern Estates wastewater treatment plant (76.1% BOD_5 and 69.7% suspended solids) was attributed to an extreme hydraulic overload, (140% of design flow) . Excess flow was attributed to infiltration (verified by the low influent BOD_5 concentration of 134 mg/l). This problem can be corrected by either elimination of infiltration, or expansion of treatment facilities.

The Westwood Lakes wastewater treatment plant removed 74% and 94.3% of BOD_5 and suspended solids, respectively. Recent modifications to the treatment process resulted in instability. No re-evaluation was done nor is any planned.

Black Creek Drainage

The Cutler Ridge wastewater treatment plant removed 86.5% BOD_5 and 73.8% suspended solids. Mechanical difficulties with a secondary clarifier reduced average removal efficiencies.

The Bell Aire wastewater treatment plant removed 77.8% BOD_5 and 89.5% suspended solids. Plans have been initiated to provide an activated sludge unit, but have been suspended pending clarification of discharge requirements.

The South Miami Heights wastewater treatment plant provided 91% reduction of BOD_5 and 85% reduction of total suspended solids. A slug of waste from a sewer cleaning project was received at the outset of the study, and this contributed to the poor solids removal. During the last three days of the study, operation stabilized and removal efficiencies were well above 90% for both BOD_5 and TSS.

South Bay Drainage

The Homestead Air Force Base wastewater treatment plant was hydraulically overloaded. Designed for 1.0 MGD, it receives approximately 2.5 MGD during winter and 3.0 MGD during summer. Removal efficiencies were 63.7% for BOD_5 and 76.0% for suspended solids. Primary and secondary clarifiers are to be expanded and sand filters added.

The City of Homestead wastewater treatment plant provided 82.7% reduction of BOD_5 and 84.7% reduction of total suspended solids from 0.873 MGD. Although the effluent carried a chlorine residual, total coliform bacterial population densities of up to 130,000 per 100 ml indicated incomplete disinfection.

The South Dade Farm Labor Camp wastewater treatment plant achieved 93.9% reduction of BOD_5 and 98.7% reduction of total suspended solids from a flow of 0.126 MGD.

The Redlands Labor Camp wastewater treatment plant achieved the highest treatment efficiency of all major plants with 96.6% reduction of BOD_5 and 96% reduction of total suspended solids. The flow was 57,000 gallons per day. Influent waste strength was high with a BOD_5 of 969 mg/l and TSS of 1,332 mg/l. The plant is a conventional trickling filter system followed by a microstrainer. Effluent is discharged to sand filters and returned to ground water.

The Leisure City wastewater treatment plant provided 86.8% reduction of BOD and 81.2% reduction of total suspended solids from 0.296 MGD.

Direct Ocean Discharge

The City of Miami Virginia Key plant treated approximately 40 MGD with a removal efficiency of approximately 80% BOD_5 and 90% suspended solids reduction. The plant, designed for 75% BOD_5 reduction, should be upgraded to provide 90% BOD_5 and TSS removal and expanded to provide additional flow capacity. The ocean outfall should be extended to the edge of the Gulf Stream.

The North Miami and Miami Beach ocean outfalls discharged approximately 15 and 22 MGD, respectively, of wastewater with limited treatment (skimming). Ninety percent treatment recommended by the Conferees would reduce the BOD_5 loading by approximately 33,000 pounds per day.

MINOR MUNICIPAL WASTE SOURCES

Forty-seven minor municipal waste sources were surveyed between December 2, 1970 and February 2, 1971. Four additional plants were inventoried but were not sampled because they were new installations which had not reached operational stability. The location of each plant is shown in Figure 2. Grab samples were collected from influent and effluent and analyzed for 5-day biochemical oxygen demand (BOD_5),chemical oxygen demand (COD), total organic carbon (TOC), total suspended solids (TSS), volatile suspended solids (VSS), and settleable solids. Additionally, effluent samples were analyzed for nitrogen compounds, total phosphorous and chloride. Temperature, chlorine residual and flow were determined in the field.

An inventory of minor municipal plants is given in Table 3 and a summary of analytical results is presented in Tables A-6 through A-10. Individual evaluation reports on each plant were prepared and are compiled in Technical Appendix II. Plant performance was considered satisfactory if 90% reduction of BOD_5 and TSS was provided.

Of the 47 minor wastewater treatment plants in Dade County, 21 plants discharged to the surface water and 26 plants discharged to the ground. The total flow from these plants was 0.915 MGD.

Only 13 plants met treatment criteria for both BOD_5 and suspended solids removal. Nineteen plants, accounting for 0.634 MGD, provided greater than 90% removal of BOD_5, but only 13 plants, accounting for 0.294 MGD, provided greater than 90% removal of TSS. Only 22 plants had licensed operators or were operated by licensed consultants.

Atlantic Ocean and Biscayne Bay Drainage Area

The Coast Guard Base wastewater treatment plant received an average flow of 0.014 MGD and was hydraulically overloaded by 44%. The BOD_5 removal efficiency was 95%; TSS removal was 28%. The plant did not meet the treatment criteria. Chlorine residual was 1.0 mg/l. This plant had a licensed operator.

The Shores Condominium wastewater treatment plant produced 82.3% BOD_5 removal and 60% total suspended solids removal. This plant did not meet the treatment criteria. Chlorine residual was 2.0 mg/l.

Snake Creek Drainage Area

The Dade Christian Schools treatment plant discharged to the 205th Street Canal after 69% BOD_5 removal and 81.9% TSS removal. It did not meet the treatment criteria. An extremely high concentration of nitrite-nitrate nitrogen, 136 mg/l, was discharged. Chlorine residual was 0.5 mg/l. The plant operator was not licensed.

Biscayne Canal and Little River Drainage Area

Six minor wastewater treatment plants in the Biscayne Canal and Little River drainage area were sampled. Food Fair Store #291 and Barry College plants discharged to the ground through drainfields. Monsignor Pace High School plant discharged to the Biscayne Canal. Del Rey Gardens Condominium, Palm Springs General Hospital, and Palm Springs Garden Condominium plants discharged to Little River.

The Barry College, Monsignor Pace High School, Palm Springs Garden Condominium, Del-Rey Gardens, and Palm Springs Hospital plants did not provide 90% removal of BOD_5 and/or TSS. All plants had chlorine residuals greater than 1.8 mg/l except Barry College which had no chlorine residual. Three operators were licensed.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida

	Name of Source and Address	Average Flow		Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
		Design	Actual					
	A. Atlantic Ocean and Biscayne Bay							
A-1	Coast Guard Station 100 McArthur Causeway Miami	.01	.0144	200	97.9	Extended Aeration	Government Cut	Plant expansion - hydraulic overload problem - increased solids removal.
A-2	Shores Condominium 1700 N.E. 105th Street North Miami	.02	-	200	82.3	Rapid Block	Biscayne Bay	Licensed operator required.
	B. Snake Creek							
B-1	Dade Christian Schools 6601 N.W. 167th Street Carol City	.07	.015	2,000	69.1	Extended Aeration, tertiary filter	205th Street Canal	Severe underload compensation.
	C. Biscayne Canal and Little River							
C-1	Food Fair Store #291 10400 N.W. 7th Avenue Miami Shores	.015	-	-	98.9	Extended Aeration	Drainfield	-
C-2	Barry College 11300 N.E. 2nd Avenue North Miami	.06	.03	1,400	85.8	Extended Aeration	Drainfield	Chlorination.
C-3	Monsignor Pace High School 15600 N.W. 32nd Avenue Opa Locka	.03	-	750	86.9	Extended Aeration	Biscayne Canal	Licensed operator required. Improved maintenance.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow		Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
		Design	Actual					
C.	Biscayne Canal and Little River (Continued)							
C-4	Del-Ray Gardens 1255 W. 49th Place Hialeah	.040	.006	484	94.4	Contact Stabilization	Little River	Phased out.
C-5	Palm Springs Hospital 1479 W. 49th Street Hialeah	.050	.014	239 (Beds)	80.9	Extended Aeration	Little River	-
C-6	Palm Springs Garden Condominium 170 Royal Palm Road Hialeah Gardens	0.05	0.02	450	76.8	Contact Stabilization	Little River	-
C-7	Palmetto General Hospital Palmetto By-Pass & N.W. 122nd St. Hialeah	.036	-	-	-	Contact Stabilization, tertiary filters	Gratiguy Canal	Recently put in operation.
D.	Miami River							
D-1	Winn Dixie Stores 1051 S.E. 8th Street Miami	.04	-	-	-	Complete Mix, tertiary filters	Soakage pit	Soon to be phased out.
D-2	Hialeah City Hall 501 Palm Ave., Hialeah	.04	-	550	90.4	Rapid Bloc, tertiary filters	Drainfield	-
D-3	Hialeah Hospital 651 E. 25th Street Hialeah	.09	-	250 (Beds and staff)	92.2	Extended Aeration and contact stabilization, open sand filters	Drainfield	Licensed operator required.
D-4	Hialeah Convalescent Home 190 W. 28th Street Hialeah	.025	-	350	69.1	Contact stabilization	2 Drainfields	Improved maintenance.
D-5	Kings Inn 500 Deer Run Virginia Gardens	.02	-	110 (Rooms)	84.0	Rapid Bloc	Drainfield	Licensed operator.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow		Population Served	Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
		Design	Actual					
	D. Miami River (Continued)							
D-6	Holiday Inn 1111 S. Royal Poinciana Blvd. Miami	.025	-	162	98.7	Extended Aeration	Miami Canal	-
D-7	Airport Lanes 1850 N.W. 42nd Avenue Miami	.022	.011	240	97.2	Extended Aeration	Tamiami Canal	-
D-8	Midway Mall West Flagler St. & Palmetto Expressway, Miami	.12	.06	84 Stores	98.3	Contact Stabilization	North Line Canal	-
D-9	Air Traffic Control 7500 N.W. 58th Street Medley	.009	-	400	99.5	Rated Aeration	58th Street Canal	-
D-10	Howard Johnson's 1980 N.W. Le Jeune Road Miami	.025	-	-	97.9	Contact stabilization	Tamiami Canal	Adequate operation.
D-11	My-Am-EE Mobile Home Park 9000 S.W. Grand Canal Drive Miami	.03	-	196 Sites	96.3	Extended Aeration, oxidation ponds	Tamiami Canal	-
D-12	Blue Lakes Trailer Park S.W. 102nd Ave. and West Flagler St., Miami	.034	-	241 Sites	98.0	Extended Aeration	Tamiami Canal	-
D-13	Medley Mobile Home Court 8181 South River Drive Medley	.035	.003	315	95.9	Contact Stabilization, tertiary filters	Soakage pit	Licensed operator required.
D-14	Saratoga Springs Apartments 400 N. Poinciana Blvd. Hialeah	.013	-	250	52.2	Extended Aeration	Drainfield	Licensed operator required.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow		Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
		Design	Actual					
	D. Miami River (Continued)							
D-15	Queens Inn Hotel 5335 N.W. 36th Street Virginia Gardens	.016	-	320	86.3	Extended Aeration, tertiary filters	Drainfield	-
D-16	79th Street Shopping Center 3015 N.W. 79th Street Miami	.045	-	450	92.8	Extended Aeration, tertiary filters	Drainfield	Licensed operator required.
D-17	American Hospital Supply N.W. 97th Ave. and 25th St. Miami	.10	-	150	93.2	Contact stabilization, tertiary filters	N.W. 25th Street Canal	-
D-18	Miami Springs High School 750 Dove Avenue Miami Springs	.02	-	-	71.8	Complete Mix	Drainfield	Surge problem.
D-19	Country Club Garden Apartments N.W. 79th Ave. and 41st St. Medley	.14	.02	1,520	98.5	Contact stabilization, tertiary filters	Private lake	-
D-20	Fair Havens Retirement Home Morningside and Reinette Miami Springs	.030	-	-	-	Contact stabilization. Jetflo filters	Soakage pit	Recently put in operation.
D-21	Virginia Gardens Apartments 6055 N.W. 37th St. Virginia Gardens	.004	-	-	-	Extended Air tertiary filters	Soakage pit	Recently put in operation.
	E. Waterway Basin							
E-1	Westchester Hospital 7500 Coral Way Coral Gables	.03	.015	100 (Beds & staff)	97.8	Extended Aeration	Coral Gables Canal	Licensed operator required.

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow		Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
		Design	Actual					
E-2	Goldberg Apartments 6775 S.W. 44th St. South Miami	.01	-	120	96.0	Extended Aeration tertiary filter	Soakage pit	-
E-3	Biltmore Hotel 1200 Anastasia Avenue Coral Gables	.30	-	100	88.0	Trickling Filter	Coral Gables Canal	Severe underload.
E-4	Ludlam Plaza Apartments Ludlam Road and S.W. 15th St. South Miami	.0125	-	155	99+	Extended Aeration	Drainfield	-
F.	Snapper Creek							
F-1	Florida Portland Cement Krome Ave. and S.W. 64th St. Westwood Lakes	.0045	-	130	89.6	Imhoff Tank trickling filter	Drainfield	-
F-2	Jade Garden Apartments S.W. 65th Ave. and U.S. 1 South Miami	.0385	-	200	99.1	Contact stabilization	Snapper Creek Canal	Licensed operator required.
F-3	Miller Lake Apartments 5500 S.W. 77th Court Westwood Lakes	.05	.003	500	70.9	Contact stabilization, tertiary filters	Soakage pit	-
F-4	Lakeview Gardens Apartments 7711 Miller Drive Westwood Lakes	.03	-	300	89.0	Contact stabilization	Drainfield	Licensed operator required.
F-5	Kendale Lakes S.W. 147th Ave. and Kendale Dr. Kendale	.50	0.05	-	96.9	Contact stabilization	Lindgrin Road Canal	-
F-6	Kendale Complex 8500 S.W. 107th Ave. Kendale	.135	-	-	85.0	Imhoff Tank trickling filter oxidation pond	Drainfield	-
F-7	Caravel West Apartments Bird Road and 102nd Ave. Westwood Lakes	.020	-	-	-	Extended Air Tertiary filters	Soakage pit	Recently put in operation

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow		Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
		Design	Actual					
G.	**Black Creek**							
G-1	Camp Matecumbe S.W. 120th St. and 137th Ave. Aladin City	.035	-	70	94.5	Extended Aeration, open sand filters	Sand filters - ground	Licensed operator required.
G-2	Casa Granada Apartments S.W. 87th Ave. and 141st St. Howard	.02	-	89 Units	96.4	Contact stabilization. Tertiary filters	C-100 Canal	-
G-3	El Rancho Apartments 14500 S.W. 88th Ave. Rockdale	.02	-	89 Units	96.5	Contact stabilization. Tertiary filters	Soakage pit	-
G-4	Naval Air Station S.W. 122nd Ave.and 152nd St. Howard	.15	-	100	31.6	Conventional activated sludge	Drainfield	Licensed operator required.
H.	**South Bay**							
H-1	Redlands Mobile Home Park 17350 Silver Palm Drive Redlands	.015	-	80 Sites	95.2	Complete Mix	Drainfield	-
H-2	Helman Court Apartments 15401 Biscayne Drive Homestead	.025	-	128 Units	96.7	Extended Aeration	Drainfield	Licensed operator required.
H-3	Sweden House 14875 S. Dixie Highway Naranja	.02	-	520	72.2	Extended Aeration	Drainfield	-
H-4	Steak and Brew Restaurant 13190 S. Dixie Highway Goulds	.015	-	200	99.2	Extended Aeration	Drainfield	-

Table 3.--Summary of Inventory Information and Abatement Needs for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Name of Source and Address	Average Flow		Population Served	Removal Efficiency %BOD	Type of Treatment	Effluent Discharged to	Remarks
		Design	Actual					
	H. South Bay (Continued)							
H-5	Sea Glade Motel S.W. 322nd St. and U.S. 1 Florida City	.004	-	32 Units	82.7	Extended Aeration open sand filter	Soakage pit	-

Miami River Drainage Area

Nineteen minor wastewater treatment plants in the Miami River drainage area were sampled. Winn Dixie Stores, Hialeah City Hall, Hialeah Hospital, Hialeah Convalescent Home, Kings Inn, Medley Park, Saratoga Springs Apartments, Queens Inn Hotel, Seventy-ninth Street Shopping Center, and Miami Springs High School discharged waste into soakage pits or drainfields. The Holiday Inn plant discharges directly into the Miami River. Airport Lanes, Howard Johnson's, My-Am-Ee Trailer Park, and Blue Lakes Trailer Park plants discharged into Tamiami Canal. Midway Mall, Air Traffic Control Center and American Hospital Supply plants discharged into tributary canals of the Miami River or Tamiami Canal. The Country Club Garden Apartments plant discharged into a private lake.

Hialeah Convalescent Home, Kings Inn, Saratoga Springs Apartments, Queens Inn Hotel, Miami Springs High School, Hialeah City Hall, Holiday Inn, Midway Mall, Air Traffic Control Center, Blue Lakes Trailer Park, Medley Mobile Park, Seventy-ninth Street Shopping Center, American Hospital Supply, and Country Club Gardens Apartments, did not provide 90% BOD_5 and/or TSS removal.

The total daily nutrient loads discharged were 72 pounds of nitrogen compounds and 24 pounds of total phosphorus. The Howard Johnson's, Saratoga Apartments, and the Seventy-ninth Street Shopping Center plants had chlorine residuals less than 0.5 mg/l. Six plants had licensed operators and four plants were operated by licensed consultants.

Coral Gables Waterway Drainage Area

Westchester Hospital and Biltmore Hotel plants discharged directly into Coral Gables Waterway. Goldberg Apartments and Ludlam Plaza Apartments plants discharged into a soakage pit and drainfield, respectively. None of these plants met the treatment criteria for BOD_5 and TSS.

Nitrogen compounds and total phosphorus discharged were 7 and 3 lbs. per day, respectively. Goldberg Apartments, Biltmore Hotel, and Ludlam Plaza Apartments plants had chlorine residuals less than 0.5 mg/l. Westchester Hospital, Goldberg Apartments and Biltmore Hotel plant operators were not licensed.

Snapper Creek Canal Drainage Area

Jade Gardens Apartments plant discharged directly into Snapper Creek. The Kendale Lakes plant discharged into Lundgrin Road Canal, and the Florida Portland Cement, Miller Lake Apartments (Venook Apartments), Lakeview Garden Apartments and Kendall Complex plants discharged into soakage pits or drainfields.

Miller Lake Apartments, Lakeview Gardens Apartments, Kendall Complex, and Kendale Lakes plants did not provide 90% removal of BOD_5 and/or TSS.

Jade Gardens Apartments and Miller Lake Apartments plants had chlorine residuals of less than 0.5 mg/l. Kendale Lakes and Kendall Complex plants were operated by utility companies, and Miller Lake Apartments had a licensed operator.

Black Creek Drainage Area

The Casa Granada Apartments plant discharged into Canal C-100, and Camp Matecumbe, El Rancho Apartments and Naval Air Station plants discharged to the ground. The Naval Air Station plant did not provide 90% BOD_5 and/or TSS reduction.

Camp Matecumbe and Naval Air station plants had no chlorine residual. These two plants were operated by unlicensed personnel. The other plants were operated by licensed consultants.

South Bay Drainage Area

Redlands Mobile Home Park, Helman Court Apartments, Sweden House, Steak and Brew Restaurant, and Sea Glades Motel wastewater treatment plants discharged to the ground.

Sweden House, Sea Glades Motel, and Helman Court Apartments plants did not provide 90% removal of BOD_5 and/or TSS.

Thirty-five lbs per day of TSS were discharged by the Helman Courts Apartments plant. Nitrogen compounds and total phosphorus discharged were 6 and 5 lbs. per day, respectively. The Helman Court Apartments and Sweden House plants had chlorine residuals less than 0.5 mg/l. The Helman Court Apartments and Sea Glades Motel plants were operated by unlicensed personnel. The remaining plants were operated by licensed parent facilities personnel or by licensed consultants.

Operational Problems at Minor Treatment Plants

Most of the minor wastewater treatment plants in Dade County are package plants which use modifications of the activated sludge treatment process. Following is a list of their most common operational problems:

* surging - can be connected with aerated surge tanks or flow splitter boxes to level peak flows.

* inadequate methods for supernatant and sludge handling -- all digesters should have multiple level outlets.

* solids accumulation - all tanks including chlorine contact chambers and transfer sumps should be sloped to a drain or sump through which the tank can be emptied for cleaning and maintenance.

* clogged pressure filters - no submersible pump should be placed in the equalizing tanks for pressure filters. A submersible pump will force solids directly into the pressure filter, permanently clogging the media.

* clogged gravity feed chlorinators - a pump driven system is recommended to reduce clogging.

* absence or malfunction of flow measuring devices - flow meters should be installed at all plants and periodically calibrated.

It is not possible to correlate efficiency of operation with licensing of operators, because of the various types of processes and the variation of loading conditions. However, it is safe to assume that efficiency of operation would increase if personnel were trained in plant operations and were required to earn a certification.

Most package plants are not collecting adequate chemical data to insure proper operation. Data requested by the State Health Department should meet this requirement.

The 47 minor treatment plants in Dade County treat only 0.915 MGD of waste. These plants require a disproportionally high amount of labor to operate and maintain them. Therefore, it would be more economically efficient if these plants were phased out and their collection systems connected to regional treatment plants.

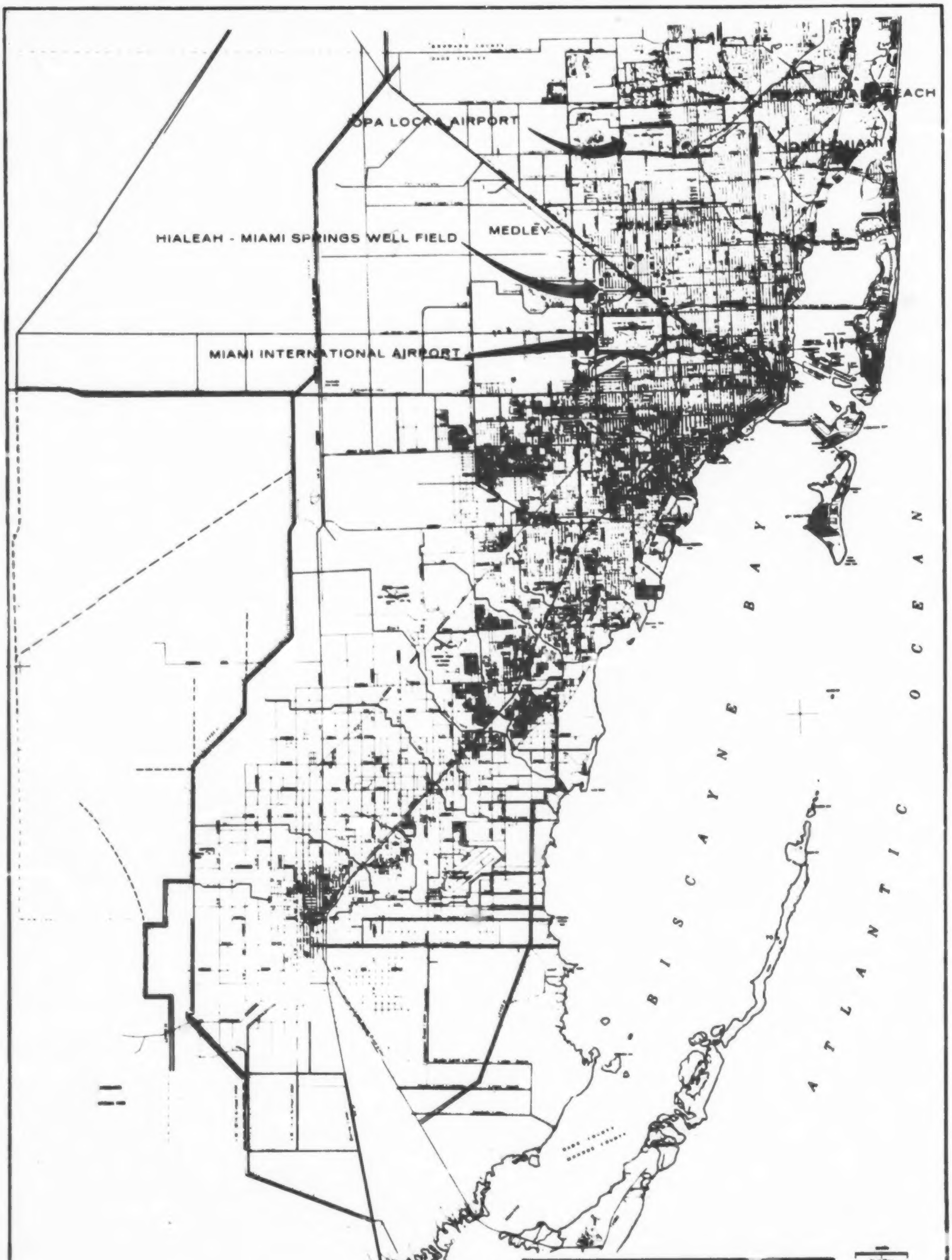
INDUSTRIAL WASTE SOURCES

Survey Methods

A list of over 1,800 industries was developed from manufacturers indices and city directories. Five hundred eighty three (583) liquid waste producing industries which were potential sources of industrial waste were interviewed by telephone. Information was obtained on the type and size of the industry, processes, waste treatment and disposal. Water use data were obtained from industries or water supply utilities to insure that major water users were included.

Two hundred thirty three (233) industries were visited and information was requested on the origin, type, and disposal of wastewaters; plant processes; water supply; and wastewater quality. Where applicable, FWQA Form 120, "Report of Industrial Waste Water Disposal," was completed. Also where applicable, a tour of the plant was requested and generally permitted by the industry.

No discharges were sampled during this survey, but a list of industries which should be sampled was prepared with information on sampling locations and general character of the waste. Inspection reports were prepared for 95 industries which were considered significant pollution sources. These reports are contained in Technical Appendix III, Industrial Waste Sources Inventory and Evaluation. Table 4 provides a summary of information on 89 major sources of industrial wastewater in Dade County. Water use figures reflect mean usage over a recent two to four months period.


OPA LOCKA AIRPORT
NORTH MIAMI
MIAMI BEACH
MEDLEY
HIALEAH - MIAMI SPRINGS WELL FIELD
MIAMI INTERNATIONAL AIRPORT
BISCAYNE BAY
ATLANTIC OCEAN

ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY OFFICE

LOCATION MAP
DADE COUNTY, FLORIDA

DIVISION OF FIELD INVESTIGATIONS - DENVER CENTER
DENVER COLORADO

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Acme Plating and Finishing 651 West 18th Street Hialeah	Electroplating	Rinse water 1,386,000 gal/mo(4)	Heavy metals	Ground water	Minor	Pretreatment and sewer connection. Sample effluent and wells for heavy metals.
Aerodex, Inc. Miami International Airport Miami	Aircraft servicing	Wash water, sanitary 5,550,000 gal/mo(2)	Grease, oil and heavy metals, cyanide.	Canal tributary to Miami River, Sanitary sewer	Oil seperator, pH control	Adequate pretreatment and sewer connection. Sample for oil, grease, and heavy metals.
Airco Plating 3636 NW 46th Street Miami	Electroplating	Rinse water 838,000 gal/mo(4)	Heavy metals	Ground water	Neutralization, detention	Pretreatment and sewer connection. Sample well for heavy metals.
Aircraft Plating, Inc. 4101 NW 28th Street Miami	Electroplating	Wash water 3,490,000 gal/mo(3)	Heavy metals	Sanitary sewer Virginia Key	Reduction of cyanide and chromium	Data from Dade County. Company was under litigation. Recent sewer connection.
Airlift, International Miami International Airport Miami	Air freight operator	Aircraft cleaning 258,000 gal/mo(2)	Oil, solvents	Canal tributary to Miami River	Oil seperator	Pretreatment and sewer connection. Sample effluent for oil.
Airtech Services, Inc. Miami International Airport Miami	Light-aircraft overhaul	Aircraft washing 150,000 gal/mo(2)	Oil	Sanitary sewer Virginia Key	Oil seperator	None
Alert Plating 1115 NW 10th Avenue Miami	Bumper refinishing	Rinse water 1,542,000 gal/mo(3)	Heavy metals	Sanitary sewer Virginia Key	Drip tank prior to rinse	Sample effluent for heavy metals
Alton Box Board 6891 NW 74th Street Medley	Corrigated cardboard	Wash water, starch makeup	Ink, starch	recycled into starch, ground water	Settling, septic tank	Connection to sewer system.
Aluminaire, Inc. 1600 NW 165th Street North Miami Beach	Aluminum grills	Rinse water 184,000 gal/mo(6)	Aluminum	Sanitary sewer, Myrtle Grove		Sample effluent for aluminum
Aluminum Anodizing Company 3630 NW 76th Street Miami	Anodyzed aluminum	Rinse water 700,000 gal/mo(4)	Aluminum, acid, caustic, dye	Ground water	Settling	Adequate pretreatment and sewer connection. Sample effluent and wells for aluminum.

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Aluminum Finishing Corp. of Florida 13464 NW 26th Avenue Opa Locka	Anodyzed aluminum	Rinse water 1,919,000 gal/mo(7)	Aluminum, acid, caustic, dye	Ground water	Settling	Adequate pretreatment and sewer connection. Sample effluent and wells for aluminum.
American Plating 50 NW 22nd Avenue Miami	Decorative plating	Rinse water 9,000 gal/mo(3)	Heavy metals	Sanitary sewer Virginia Key		Drip tank prior to rinse. Sample effluent for heavy metals.
Anodyne 1270 NW 165th Street Miami	Lithograph and silk-screen print.	Wash water dye makeup 930,000 gal/mo(6)	Dye, heavy metals	Sanitary sewer, Myrtle Creek	pH control, aeration	Sample effluent for heavy metals.
Arrow Beef Corporation 18330 NE 2nd Avenue Miami	Cut meat from carcasses	Wash water	Dried blood	Sanitary sewer Myrtle Grove	Grease trap	Pretreatment
Associated Plastics 10101 E. 31st Street Hialeah	Paints	Product makeup, washing 62,000 gal/mo(1)	Paint, solvent	Ground water		Connection to sewer system.
Atlas Metal Industries, Inc. 1135 NW 159th Drive North Miami	Fabricated metal	Rinse water	Heavy metals	Sanitary sewer Myrtle Grove		Sample water supply and effluent for heavy metals.
August Bros. Bakery Seaboard Industrial Park Miami	Bread products	Wash water	High organic load	Sanitary sewer Seaboard Ind. Park		Sample effluent for BOD
Beverage Canners Seaboard Industrial Park Miami	Canned soft drinks	Product makeup, wash water 3,320,000 gal/mo(3)	Organic loading	Sanitary sewer, Seaboard Ind. Park		Sample effluent for BOD
Birmy Photo Engraving Co. 2244 NW 21st Terrace Miami	Photo developing printing, and engraving	Rinse water	Photo chemicals ferric chloride	Sanitary sewer Virginia Key		None

Table 4.--Significant Industrial Wastewater Sources in Dade County, Flordia--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Borden's Dairy 7103 NE 2nd Avenue Miami	Milk and dairy products	Waste water	Organic loading	Ground water		Connection to sewer system.
Britt Metal Processing, Inc. 7490 NW 24th Avenue Miami	Aircraft engine parts	Chrome plating solution, washing 46,000 gal/mo(3)	Chromium	Ground water	Chromium reduction precipitation	Connection to sewer system.
Butler Aviation of Miami, Inc. Miami International Airport Miami	Refurbishing of used aircraft	Aircraft stripping and cleaning 182,000 gal/mo(2)	Oil, caustic, acid, solvents heavy metals	Canal tributary to Miami River	Settling tank	Pretreatment and connection to sewer system
Canada Dry Bottling Co. of Florida, Inc. 5900 NW 72nd Avenue Miami	Soft drinks	Water treatment, product makeup wash water	Organic loading	58th St. Canal	Being installed	Company presently under litigation
Capital Film Labs, Inc. 1999 NE 150th Street North Miami	Movie film processing	Rinse water 920,000 gal/mo(5)	Photo chemicals	Sanitary sewer, North Miami	Silver precipitation, solution recycling	None
Coca Cola Bottling Company of Miami 301 NW 29th Street Miami	Soft drinks	Product makeup, washing 4,511,000 gal/mo(3)	Organic loading	Sanitary sewers, Virginia Key		None
Colebrook Knitting Mills 3965 E. 10th Ct. Hialeah	Knit sweaters	Sweater washing	Natural oils	Closed system	recycling	None
Colorgraphic Photo Engravers 1822 NW 22nd Street Miami	Photo engraving	Rinse water 3,300 gal/mo(1)	Photo chemicals	Sanitary sewers Virginia Key		None
Continental Bumper Plating 4975 E. 10th Lane Hialeah	Bumper refinishing	Rinse water 6,100 gal/mo(4)	Cyanide, heavy metals	Ground water	Settling	Pretreatment and connection to sewer system. Sample effluent

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Continental Can Company Seaboard Industrial Park Miami	Cans	Cooling 314,000 gal/mo(3)	Heat, heavy metals	Sanitary sewer, Seaboard Ind. Park		Sample effluent.
Cott Bottling of Florida 7130 NW 35th Avenue Miami	Soft drinks	Product makeup, washing	Organic loading	Ground water		Connection to sanitary sewer system.
Dade County Dairies 7350 NW 30th Avenue Miami	Milk products	Wash water, cooling	Bacteria, organics	Ground water	Spray irrigation	Connection to sewer system.
Dade Division, American Hospital Supply Corporation 1851 Delaware Parkway Miami	Diagnostic Reagents	Wash water 181,000 gal/mo(1)	Chemicals, bacteria	Sanitary sewer Virginia Key	pH control	Sample effluent
Delta Air Lines Miami International Airport Miami	Airline	Aircraft washing	Oil, solvents	Canal	Oil seperator	Now minor use of facility. Company under litigation.
Diamond Color Labs 1999 NE 150th Street North Miami	Film processing	Rinse water	Photo chemicals	Sanitary sewer North Miami		Inspector refused admission to plant. Sample effluent. Company reportedly treats effluent.
Dodge, Inc. 380 NE 60th Street Miami	Electroplating	Rinse water 29,000 gal/mo(3)	Heavy metals	Ground water	Settling	Pretreatment and connection to sewer system.
Eastern Air Lines Miami International Airport Miami	Airline	Aircraft washing, metal plating 14,520,000 gal/mo(2)	Oil, heavy	Sanitary sewer, Virginia Key Canal	Oil seperator, metal precipitation	Connection of all wastes lines to sewer system
Economy Packing Company 2419 West 3rd Court Hialeah	Killing and cutting beef	Washing 498,000 gal/mo(4)	Grease, organic loading	Ground water	Grease traps septic tanks	Connection to sewer system
Engravers, Inc. 1120 NW 21st Street Miami	Photo engraving	Rinse water	Photo chemicals, heavy metals	Sanitary sewer, Virginia Key	Neutralization, silver precipitation	Classified work, no plant admittance.

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Eates Silversmiths 2152 NW 17th Avenue Miami	Decorative plating	Rinse water	Heavy metals	Sanitary sewer, Virginia Key		Small operation.
Far Mac Plating, Inc. 2196 NW 17th Avenue Miami	Metal plating	Rinse water 12,000 gal/mo(1)	Heavy metals	Sanitary sewer, Virginia Key		Sample effluent for heavy metals
Farm Stores, Inc. 5800 NW 74th Avenue Miami	Milk and Ice cream	Process, cooling, boiler from well	Waste milk and products	Ground water	Activated treatment	Better operation at existing waste treatment facilities.
Federal Packing Company 330 W. 23rd Street Hialeah	Killing and cutting beef	Washing 599,000 gal/mo(4)	Blood, paunch manure, grease	Ground water	Ineffective old package plant	Pretreatment. Connect to sewer system when completed in Hialeah area.
Florida Carib Fishery, Inc. 25 SW South River Drive Miami	Lobster Processer		Organic loading from lobster process	Sanitary sewer Virginia Key	None	Pretreatment
Florida Live-Pack Lobster Sales 34 Hook Square Miami Springs	Lobster sales	Cooling water	Coliforms	Canals	Settling	Connection to sewer system. Fecal coliforms apparently result from other tenants (theatre) on property. Company under litigation.
Florida Processing Company 6900 NW 69th Street Miami Springs	Tallow and meat scrap processing	Rinse water boiler feed	Organic loading grease	Trucked to Virginia Key	Package plant chlorination	In operation.
G. Gertz Enterprises 3401 NW 73rd Street Miami	Knitting mill	Washing and dyeing 682,000 gal/mo(4)	Oil and dye	Ground water	Carbon filters	Connection to sewer system.
Gotham Provision Company, Inc. 7301 NW 74th Street Medley	Killing and cutting beef	Washing	Blood, pauch manure, grease	Ground water	Settling, grease trap	Connection to sewer system
Henderson's Portion Pak 4202 Salzedo Coral Gables	Processing food products	Wash water shrimp thawing	Grease, organic loading	Sanitary sewer Coral Gables	Grease trap	None

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Home Milk Producers Association 2451 NW 7th Avenue Miami	Process milk	Wash, cooling 7,266,000 gal/mo(3)	Organic loading	Sanitary Sewer Virginia Key	Recirculated cooling water	None
Homestead Air Force Base Homestead	Air Force Base	Washing aircraft	Solvents, detergent, oil and grease	Canals	Oil seperator	None
Howard Johnson 1631 West Flagler Street Miami	Ice cream	Boiler feed, cooling, process wash water 240,000 gal/mo(3)	Organic loading	Sanitary sewer Virginia Key		None
International Aerodyne, Inc. Miami International Airport Miami	Aircraft maintenance	Aircraft washing and stripping 8,300 gal/mo(2)	Oil, caustic, acid, solvent, heavy metals	Sanitary sewer Virginia Key	None	Pretreatment: Sample drain durin aircraft washing. Question as to disposal of waste.
Jim Robbins Seat Belt Company 705 E. 10th Avenue Hialeah	Finish seat belts from spool fabric	Cooling, washing 3,300,000 gal/mo(4)	Dye	Sanitary sewer for cooling water. Sealed pit for dye wash	None	None
Key Biscayne Hand Print 3480 NW 41st Street Miami	Silk screen printing	Water feed, washing and dyeing	Dye	Hauled away	None	Connect to sewer.
Kim Color (Tremendous Color, Monkey Color, Inc.) 532 West 20th Street, Hialeah	Photo processing	Rinse water 2,196,000 gal/mo(4)	Photo chemicals	Ground water	Settling	Pretreatment and connection to sewer system (Plans have been made for connection)
London Platers 1080 E. 24th Street Hialeah	Decorative plating	Rinse water from well	Heavy metals	Ground water		Pretreatment and connection to sewer system. Sample effluent and wells for heavy metals
McArthur Jersey Farms 6851 NE 2nd Avenue Miami	Milk distribution	Cooling, washing 6,592,000 gal/mo(3)	Organic loading	Ground water		Connection to sewer system

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Miami Aviation Corporation Opa Locka Airport Opa Locka	Aircraft refurbishing	Aircraft stripping and cleaning 280,000 gal/mo(2)	Oil, solvents acid, caustic, heavy metals	Canal via storm drain	None	Pretreatment and connection to existing sanitary sewer system. Sample drainage, trace flow with dye.
Miami Board, Division of Simkins Ind., Inc. P. O. Box 1397 Miami	Cardboard	Cooling, wash, process	Organic loading, settleable solids	Tamaimi Canal	Clarification, chlorination	Connection to sewer system. Company under litigation
Miami Dye Works 355 NE 72nd Terrace Miami	Dyed fabrics	Wash water 650,000 gal/mo(3)	Dye, organics	Ground water (salt water)	Settling	Pretreatment and connection to sewer system
Milgo Electronic Corporation 7620 NW 36th Avenue Miami	Electronic equipment manufacture	Rinse water from chrome plating 374,000 gal/mo(4)	Chromium	Ground water	Chromium reduction, settling	Connection to sewer system. Sample effluent for chromium
Miller Industries 16295 NW 13th Avenue Miami	Aluminum pieces	Rinse water 325,000 gal/mo(6)	Haxavalent chromium	Sanitary sewer Myrtle Grove	None	Pretreatment for chromium reduction
Modern Air Transport Miami International Airport Miami	Air freight	Aircraft washing 692,000 gal/mo(2)	Oil, solvents, heavy metals	Canal tributary to Miami River	Primitive oil seperator	Pretreatment and connection to sewer system.
Modern Aluminum Coatings, Inc. 7295 NW 64th Street Miami	Anodyzed aluminum	Rinse water from wells	Aluminum, acid, caustic	Ground water	Settling	Pretreatment and connection to sewer system. Sample inflow and outflow from pond for aluminum.
National Brewing Company 637 NW 13th Street Miami	Fermented drinks	Wash water, product makeup, 16,529,000 gal/mo(3)	Organic loading	Sanitary sewer Virginia Key		None
National Linen Service 1950 NW 1st Avenue Miami	Commercial linen cleaning	Wash water 5,600,000 gal/mo(1)	Soap, oil	Sanitary sewer Virginia Key	Soap degradation	None

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Natro, Inc. (Veric Processing) 2755 W. 8th Avenue Hialeah	Textiles	Unknown	Dye, paint	Ground water	Have plant	Refused to see inspectors. Effluent from plant visibly discolored. Sample.
Neway Laundry 160 Ali Baba Avenue Opa Locka	Commercial laundry	Wash water 1,942,000 gal/mo(7)	Soap, caustic	Sanitary sewer, Opa Locka	Settling	None
Northeast Air Lines Miami International Airport Miami	Passenger and freight airline	Aircraft washing 35,000 gal/mo(2)	Oil, solvents, heavy metals	Canal tributary to Miami River	3 primitive oil seperators	Pretreatment and connection to sewer system.
Pepsi Cola Bottling Company of Miami, Inc. 7777 NW 41st Street Miami	Soft drink manufacture	Process boiler feed domestic use from wells	Unknown constitutants being sampled by Dade County Pollutant Control	Graham Dairy Canal	Have plant	Reddish-brown effluent flow from existing plant. Need to improve and properly operate plant.
Perkins Marine Lamp and Hardware Corporation 16490 NW 13th Avenue Miami	Manufacture marine hardware	Process, boiler feed, domestic use 1,379,000 gal/mo(6)	Heavy metals	Sewer	None	Pretreatment
Propeller Service of Miami and Aero Facilities, Division of Prop. Service Miami International Airport Miami	Aircraft maintenance	Washing 250,000 gal/mo(2)	Oil and grease, solvent cleaner	Sewer, Canal tributary to Miami River	2 oil seperators retention tank hauling , service	Verify by sampling that system sewer are adequate pretreatment Connection to sewer system.
Robert Russell Metals 5761 NW 37th Avenue Miami	Produces aluminum extrusion billets	Cooling wells	Metals	Ground water	Settling	Pretreatment and connection to sewer.
Seaboard Coastline Railroad Miami	Freight transport	Washing of rail equipment	Oil, solvents	Canal	Flotation, floculation	Connection to sewer system
Selig Chemical 660 W. 18th Street Hialeah	Warehousing chemical	Washing	Unknown	Ground water	Settling	Pretreatment and connection to sewer.

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Tripure Spring Water Company and Standard Chemical Co. 3355 NW 73rd Street Miami	Bottled water	Wash water, product makeup, boiler feed 506,000 gal/mo(1)	Minerals, detergents	Ground water	None	None
Tropical Plating 1825 NW 79th Street Miami	Decorative metal plating	River water-wells	Heavy metals cyanide	Ground water	Settling	Pretreatment and connection to sewer. Sample effluent for heav metals.
Uni-Vinyl Corporation 3750 NW 43rd Street Miami	PVC compounding	Cooling	PVC and other organics	Ground water	None	Connection to sewer
Zippy Chocolate Beverage 355 NW 52nd Street Miami	Chocolate beverages	Product makeup boiler feed, wash	Organic loading, detergent BOD 800-1,000 mg/1	Ground water	None	Connection to sewer system

Source of Water-Use Data.
1/ Supplied by Company.,
2/ Dade County Port Authority.
3/ Miami Water Department.
4/ Hialeah Water Department.
5/ North Miami Water Department.
6/ North Miami Beach Water Department
7/ Opa Locka Water Department.

Table 4.--Significant Industrial Wastewater Sources in Dade County, Florida--Continued

Industry	Major Product or Service	Water Use Type and Amount	Nature of Waste Discharged	Receiving Water	Present Treatment	Treatment Needs - Remarks
Smith and Butterfield 3170 NW 36th Street Miami	Film developer	Rinse water 190,000 gal/mo(1)	Photo chemicals	Ground water	Silver precipitation	Connection to sewer
Smith, Richardson, and Conroy 3500 NW 62nd Street Miami	Portion pack meat	Boiler feed wash water 250,000 gal/mo(1)	Oil and grease Organic loading	Ground water	Settling, oil and grease skimming	Connection to sewer
Southern Air Transport, Inc. Miami International Airport Miami	Air transport freight	Washing aircraft and equipment 50,000 gal/mo(2)	Oil, grease and solvents	Sanitary sewer Virginia Key	Oil skimmer	None
Southern Plating, Inc. 720 NW 72nd Street Miami	Plated aircraft parts	Rinse water 156,000 gal/mo(3)	Cyanide and heavy metals	Sanitary sewer Virginia Key	None	Pretreatment
Southern Beverages 3601 NW 55th Street Miami	Soft drink manufacture	Process product makeup, rinsing	Organics and detergent	Ground water	None	Connection to sewer
Standard Bumper Corporation 2500 W. 3rd Ct., Hialeah	Bumper refurbishing	Rinse water 22,000 gal/mo(4)	Heavy metals, cyanide	Ground water	None	Pretreatment and connection to sewer. Sample effluent for heavy metals.
Super Brand Dairy Seaboard Industrial Park Miami	Milk distribution	Wash water 1,070,000 gal/mo(3)	Organic loading at 860 ppm BOD	Sanitary sewer Seaboard Ind. Park	None	Pretreatment
Sun-Aid Food Products 3615 NW 60th Street Miami	Manufacture jelly, jams, mustard mayonnaise	Product makeup cooling wash 240,000 gal/mo(1)	Organic loading	Ground water	Grease trap	Connection to sewer system
Tallo-Master Scott Road Medley	Grease processing	Wash, cooling	Grease	Canal	Oxidation pond, skimming	Connection to sewer system. Company cited by county for grease discharges.
Tower Paint Company 620 West 27th Street Hialeah	Manufacture paint	Product makeup wash 77,000 gal/mo(4)	Paint, solvents, detergents	Ground water	Settling and sludge disposal	Pretreatment and connection to sewer

Receiving Waters

Of 89 industries having significant wastewater discharges, 15 discharged into surface water courses, 36 discharged to ground water through seepage pits, and 38 discharged into sanitary sewer systems.

Five plants which discharged to surface waters would be expected to have biodegradable organic wastes. All have some treatment.

Canada Dry - treatment being installed
Florida Live Pack Lobsters - settling
Miami Board - clarifier and chlorination
Pepsi Cola - treatment plant
Tallowmaster - oxidation pond

The 10 remaining surface-discharge plants had wastes such as oil and grease, solvent, detergents, and sludge. Eight are located at the Miami International Airport.

- Aerodex
- Airlift International
- Butler Aviation
- Delta Airlines
- Eastern Airlines
- Miami Aviation
- Modern Air Transport
- Northwest Airlines

These airport area industries discharged wastes into the canal system within the Miami International Airport tributary to Miami River. Canals are in the Miami Springs-Hialeah well field, a major municipal water supply source for the Miami Metropolitan area.

Homestead Air Force Base and Seaboard Coastline discharged their wastes into canals in their respective drainage basins.

Thirty-six (36) industries discharged untreated (or partially treated) waste to ground water "three dry wells" or seepage pits. This practice is especially common in the Hialeah area immediately adjacent to the Miami Springs-Hialeah well field, and may cause contamination of the groundwater aquifer.

Thirty-eight (38) major industries discharged both process and sanitary wastes into municipal sewer systems. The wastes may be of major concern to the sewage treatment plant operators. Operational difficulties have occurred at the Myrtle Grove and Miami Lakes Utilities plants because of the high proportion of industrial waste.

Sewage system operators are protected from indiscriminate industrial waste discharges by a ruling of the Dade County Board of County Commissioners known as Rule 7--"Regulations of the Use of Sanitary and Storm Sewers and the Discharge of Waters and Wastes into Utilities' Sewerage Systems." Under this rule, utility companies require disclosure through sampling and analysis of the pollution load of certain proposed or existing industrial discharge and may require pretreatment at the industries expense where necessary. A copy of Rule 7 is included in Appendix A-11.

Waste Characteristics

Group I - Food Processing and Paper:

Dairy wastes are high in dissolved organic substances, contain lactic acid and casein and about 1000 mg/l of BOD. Surprisingly, dairy wastes are reported to contain mercury in the range of 25-75 mg/1.[1]

Bakery wastes result from discarding and washings and contain sugars and yeasts which exert extremely high BOD.

Meat packing and processing, and rendering plants contain meat scraps, blood, washings, fats and suspended solids arising from trimming, cleaning, and dressing of animals. The BOD_5 levels may be as high as 32,000 mg/1 for blood washings while for other processes such as lard rendering BOD_5 may be up to 200 mg/1.

Beverage and bottling operations have variable waste characteristics resulting from alkaline bottling operations, leftover drinks, and syrup spills.

Paper board processing wastes contain suspended solids, settleable solids, andBOD. Past analyses of the Miami Board plant indicated an effluent fecal coliform level of 10^6 per 100 ml.

Group II - Aircraft Engine Repair and Painting:

Wastes from aircraft repair, washing and painting contain detergents, oils and grease, residual metals, cyanides and miscellaneous organic material.

Group III - Chemical and Film Processing wastes:

Photographic wastes consist of spent reducing solutions (hydroquinone and pyrogallol) and fixing solutions (sodium thiosulfate). These solutions exert both chlorine and oxygen demand. In the photographic

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[1] Nemerow, Leonard Nelson, Theories and Practices of Industrial Waste Treatment, Addison-Wesley Publishing Co., Inc., Reading, Mass., 1963, p. 326.

process, other chemicals may be used: ferricyanide as a color bleaching agent, benzyl alochol in color developing, and chromium in slide processing. Proprietary developing and fixing solutions might also enter into the process.

Mercury is reported to be a reagent used at the Dade Division of American Hospital.

Group IV - Metal Plating Industries:

Metal plating wastes may be acidic or alkaline depending upon the plating process or the stage from which the waste is removed. Acidic wastes usually contain sulfuric, hydrochloric, nitric, acetic and/or phosphoric acids. Alkaline wastes may contain sulfide, cyanide and hydroxide anions, detergents, soaps, oils and suspended solids.

Heavy metals such as nickel, chromium, zinc, cadmium, copper, iron, and mercury might enter the waste stream as part of the process or as a contaminant of another metal introduced into the process.

Abatement Actions

Fourteen industries are presently involved in litigation under various Federal and local ordinances (Table 5). Three oil discharge actions are being prosecuted under the 1899 Refuse Act and three are being prosecuted under county regulations. Other industrial cases carried under county ordinance include Canada Dry Bottling Co., Pepsi Cola Bottling Co., Farm Stores, Inc., Florida Live Pack Lobster Sales, Miami Board, Florida Processing, Tallowmaster and Natro, Inc.

Table 5.--Industries Currently Under Enforcement Action

Company	Pollution Problem	Type Action	Status
Aerodex, Inc.	Oil Discharge	1899 Act	Company reducing activities.
Airlift, International	Oil Discharge	1899 Act	Company reinstituted use of oil seperator.
Modern Air Transport	Oil Discharge	1899 Act	Discharges continuing.
Canada Dry Bottling Co.	Process waste to Canal	County Regulation	Continuing. Plant being installed.
Delta Air Lines	Oil Discharge	County Regulation	Activities reduced.
Farm Stores, Inc.	Milk wastes	County Regulation	Existing treatment plant not operating properly.
Florida Live-Pack Lobster Sales	Fecal coliform	County Regulation	Apparently results from cross connection by tenant. Investigation continuing.
Florida Processing	Grease	County Regulation	Now hauling waste to plant, prior to completion of new treatment system.
National Air Lines	Oil Discharge	County Regulation	New plant recently completed.
Pan American Air Lines	Oil Discharge	County Regulation	Recently improved treatment.
Pepsi-Cola Bottling Co.	Process waste	County Regulation	Discharge continuing.
Miami Board, Simkins Industries	Fecal coliform	County Regulation	Apparently results from cross connection. Investigation continuing.
Tallo-Master	Grease discharge	County Regulation	Skimmer not maintained.
Natro, Inc. (Veric Processing)	Paint and dye in effluent	County Regulation	Discharge continuing.

Information furnished by Dade County Pollution Control.

Additional Sampling and Evaluation

Additional industrial waste sampling and analysis at 43 plants was initiated on May 17, 1971. Included in this survey are:

GROUP I - FOOD PROCESSING

Bordens Dairy
Canada Dry
Cott Bottling
Dade Co. Dairies
Economy Packing
Farm Stores
Federal Packing Co.
Florida Live Pack Lobster
Florida Processing Co.
Gotham Provision Co.
MacArthur Jersey Farm
Miami Board
Pepsi-Cola
Tallowmaster

GROUP II - AIRCRAFT REPAIR AND PAINTING

Aerodex
Airlift International
Butler Aviation of Miami
Delta Air Lines
Eastern Air Lines
Homestead Air Force Base
Miami Aviation Corp.

Modern Air Transport

Northeast Airlines

Propeller Service of Miami

Seaboard Coastline Railroad

GROUP III - CHEMICAL AND FILM PROCESSING

Dade Division, American Hospital Supply

Gertz

Kim Color

Miami Dye Works

Natro

Smith and Butterfield

GROUP IV - METAL PLATING

Acme Plating and Finishing

Airco Plating

Aluminum Anodizing Co.

Aluminum Finishing Corp. of Florida

Continental Bumper Plating

London Platers

Milgo Electric Corp.

Modern Aluminum Coatings

Standard Bumper

Tropical Plating

GROUP V - PAINT COMPANIES

Associated Plastics

Tower Paint Co.

Table A-1.--Average Efficiencies and Effluent Loads for Major Municipal Waste Sources, Dade County, Florida
Biochemical Oxygen Demand and Total Suspended Solids

Facility	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent	Percent removal	Load lb/day
Snake Creek Drainage									
Andover	1.714	164	20	84.0	309	135	17	83.0	200
Carol City	2.030	164	31	82.5	520	146	56	71.2	96
Riverdale Estates	0.362	456	66	85.6	190	369	249	32.6	769
Golden Isles	0.642	182	32	82.4	172	182	31	79.9	166
Myrtle Grove-City of North Miami	1.645	250	21	91.8	289	394	24	93.8	330
Country Club of Miami	0.185	138	4	94.5	6	102	13	85.0	20
Palm Springs North S.D.	0.447	265	18	92.8	67	922	9	98.6	34
Biscayne Canal and Little River Canal Drainage									
Miami Lakes Utilites	0.727	233	42	79.8	253	172	72	70.9	316
Seaboard Industrial Park	0.117	788	32	95.0	31	866	27	95.2	26
Opa Locka Airport-Dade County Port Authority	0.183	187	34	82	60	129	16	87	24
Miami River Drainage									
Atomic Sewerage	0.024	1,126	106	89.9	22	1,348	124	89.0	27
Doral Country Club	0.215	295	28	90.1	53	218	54	57.6	108
Coral Gables Waterway									
Lil' Abner Trailer Park	0.072	402	52	84.1	32	350	80	79.1	52
Pan American Hospital	0.036	209	5	97.8	2	248	65	60.1	20
Community Utilities	2.471	211	12	94.4	230	200	24	87.5	499
Snapper Creek Drainage									
Peninsular Utilites	2.500	230	24	89.5	502	365	41	88.9	847
Southern Estates	1.428	134	31	76.1	373	166	50	69.7	588
Westwood Lakes	1.970	227	57	74.0	939	798	52	94.3	856

Table A-1.--Average Efficiencies and Effluent Loads for Major Municipal Waste Sources, Dade County, Florida Biochemical Oxygen Demand and Total Suspended Solids --Continued

Facility	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent	Percent removal	Load lb/day
Black Creek Drainage									
South Miami Heights	1.089	507	34	92.2	306	958	83	85.1	751
Cutler Ridge	2.195	209	21	86.5	479	374	78	73.8	1,473
Bell Aire S.D.[1]	0.423	233	51	77.8	180	285	28	89.5	99
South Bay Drainage									
Homestead Air Force Base	2.116	52	18	63.7	318	69	38	76.0	631
City of Homestead	0.893	174	31	82.7	222	258	42	84.7	306
South Dade Labor Camp	0.126	500	33	93.9	35	785	10	98.7	11
Redland Labor Camp[2]	0.057	479	18	90.6	23	679	34	90.6	43
Leisure City[2]	0.296	238	31	86.8	76	437	73	81.2	175
Atlantic Ocean									
Virginia Key-City of Miami	40.3	311	64	79.3	21,640	654	75	88.4	2,445
North Miami	13.5	64	-	-	722	115	-	-	12,978
Sunny Isles	1.5	144	-	-	1,804	91	-	-	1,140
Miami Beach	21.8	165	-	-	29,998	176	-	-	31,998

[1] Contributes 40 percent of load surface water, 60 percent to ground water.
[2] Ground water discharge.

Table A-2.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Continued
Chemical Oxygen Demand and Total Organic Load

Facility	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent	Percent removal	Load lb/day
Snapper Creek Drainage									
Peninsular Utilities	2.500	679	79	86.9	1,656	142	20	85.3	406
Southern Estates	1.428	501	106	78.0	1,253	96	31	67.6	362
Westwood Lakes	1.970	556	164	70.5	2,701	128	58	52.4	955
Black Creek Drainage									
South Miami Heights	1.089	2,051	95	95.0	854	264	11	84.4	272
Cutler Ridge	2.195	714	66	90.5	1,219	116	29	73.0	533
Bell-Aire S.D.1/	0.423	605	151	71.9	534	126	39	69.0	137
South Bay Drainage									
Homestead Air Force Base	2.116	446	60	84.1	1,045	44	18	56.7	309
City of Homestead	0.893	368	99	73.5	714	106	43	56.8	304
South Dake Labor Camp	0.126	3,069	227	92.9	239	335	18	94.6	19
Redlands Labor Camp2/	0.057	1,016	63	89.5	79	234	17	84.2	22
Leisure City2/	0.296	785	93	87.1	233	163	32	80.8	80
Atlantic Ocean									
Virginia Keys-City of Miami	40.3	791	172	77.9	57,580	239	50	78.4	16,720
North Miami	13.5	540	-	-	60,938	42	-	-	4,740
Sunny Isles	1.5	560	-	-	7,018	97	-	-	1,216
Miami Beach	21.8	522	-	-	94,905	70	-	-	12,726

1/ Contributes 40 percent to surface water, 60 percent to ground water
2/ Ground water discharge.

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Snake Creek Drainage							
Andover	1.714	119	12	70.0	209	9	0.1
Carol City	2.030	106	42	63.7	713	11	0.2
Riverdale Estates	0.362	425	162	60.0	468	27	4.0
Golden Isles	0.642	157	28	79.4	150	10	1.0
Myrtle Grove-City of North Miami	1.645	334	21	93.6	289	8.5	.1
Country Club of Miami	0.185	84	11	83.3	17	7	0.1
Palm Springs North S.D.	0.447	870	6	99.3	22	35	.1
Biscayne Canal and Little River Canal Drainage							
Miami Lakes Utilities	0.727	132	29	77.2	175	8	1.2
Seaboard Industrial Park	0.117	783	21	96.0	21	18	.1
Opa Locka Airport-Dade County Port Authority	0.183	99	12	88	18	4	.3
Miami River Drainage							
Atomic Sewerage	0.024	1,235	73	92.5	15	32	0.08
Doral Country Club	0.215	122	46	26.0	86	12	0.34
Coral Gables Waterway							
Lil' Abner Trailer Park	0.072	212	32	80.2	25	14	0.8
Pan American Hospital	0.036	134	29	53.8	8.7	15	0.1
Community Utilities	2.471	170	21	87.4	420	19	0.1
Snapper Creek Drainage							
Peninsular Utilities	2.500	344	34	90.6	701	7.5	0.1
Southern Estates	1.428	138	40	70.8	472	5	0.1
Westwood Lakes	1.970	743	47	93.7	774	13	0.3

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids--Continued

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Black Creek Drainage							
South Miami Heights	1.089	923	75	85.0	668	19	0.1
Cutler Ridge	2.195	342	69	73.6	1,293	7	0.1
Bell Aire S.D.1/	0.423	250	23	94.6	81	9	0.1
South Bay Drainage							
Homestead Air Force Base	2.116	65	8.3	86.0	149	3	0.2
City of Homestead	0.893	181	34	82.3	248	8	0.1
South Dade Labor Camp	0.126	731	6	99.2	6	2	0.1
Redlands Labor Camp2/	0.057	652	28	91.9	35	9	0.5
Leisure City2/	0.296	413	71	81.7	169	9	0.2
Atlantic Ocean							
Virginia Key-City of Miami	40.3	580	61	89.8	19,100	10	0.1
North Miami	13.5	96	-	-	10,833	1.5	-
Sunny Isles	1.5	79	-	-	990	2	-
Miami Beach	21.8	130	-	-	23,635	8	-

1/ Contributes 40 percent to surface water, 60 percent to ground water.

2/ Ground water discharge.

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Snake Creek Drainage							
Andover	1.714	119	12	70.0	209	9	0.1
Carol City	2.030	106	42	63.7	713	11	0.2
Riverdale Estates	0.362	425	162	60.0	468	27	4.0
Golden Isles	0.642	157	28	79.4	150	10	1.0
Myrtle Grove-City of North Miami	1.645	334	21	93.6	289	8.5	.1
Country Club of Miami	0.185	84	11	83.3	17	7	0.1
Palm Springs North S.D.	0.447	870	6	99.3	22	35	.1
Biscayne Canal and Little River Canal Drainage							
Miami Lakes Utilities	0.727	132	29	77.2	175	8	1.2
Seaboard Industrial Park	0.117	783	21	96.0	21	18	.1
Opa Locka Airport-Dade County Port Authority	0.183	99	12	88	18	4	.3
Miami River Drainage							
Atomic Sewerage	0.024	1,235	73	92.5	15	32	0.08
Doral Country Club	0.215	122	46	26.0	86	12	0.34
Coral Gables Waterway							
Lil' Abner Trailer Park	0.072	212	32	80.2	25	14	0.8
Pan American Hospital	0.036	134	29	53.8	8.7	15	0.1
Community Utilities	2.471	170	21	87.4	420	19	0.1
Snapper Creek Drainage							
Peninsular Utilities	2.500	344	34	90.6	701	7.5	0.1
Southern Estates	1.428	138	40	70.8	472	5	0.1
Westwood Lakes	1.970	743	47	93.7	774	13	0.3

Table A-3.--Average Efficiencies and Effluent Load for Major Municipal Waste Sources, Dade County, Florida--Volatile Suspended Solids and Settleable Solids--Continued

Facility	Flow MGD	Volatile Suspended Solids				Settleable Solids	
		Influent	Effluent	Percent removal	Load lb/day	Influent	Effluent
Black Creek Drainage							
South Miami Heights	1.089	923	75	85.0	668	19	0.1
Cutler Ridge	2.195	342	69	73.6	1,293	7	0.1
Bell Aire S.D.1/	0.423	250	23	94.6	81	9	0.1
South Bay Drainage							
Homestead Air Force Base	2.116	65	8.3	86.0	149	3	0.2
City of Homestead	0.893	181	34	82.3	248	8	0.1
South Dade Labor Camp	0.126	731	6	99.2	6	2	0.1
Redlands Labor Camp2/	0.057	652	28	91.9	35	9	0.5
Leisure City2/	0.296	413	71	81.7	169	9	0.2
Atlantic Ocean							
Virginia Key-City of Miami	40.3	580	61	89.8	19,100	10	0.1
North Miami	13.5	96	-	-	10,833	1.5	-
Sunny Isles	1.5	79	-	-	990	2	-
Miami Beach	21.8	130	-	-	23,635	8	-

1/ Contributes 40 percent to surface water, 60 percent to ground water.

2/ Ground water discharge.

Table A-4.--Average Concentrations and Effluent Load for Major Municipal Waste Sources for Dade County, Florida
Nitrogen, Phosphorus and Chlorides

Facility	Flow MGD	Kjeldahl Nitrogen as N Effluent mg/l	Kjeldahl Nitrogen as N Load lb/day	Ammonia Nitrogen as N Effluent mg/l	Ammonia Nitrogen as N Load lb/day	Organic Nitrogen as N Effluent mg/l	Organic Nitrogen as N Load lb/day	NO_2+NO_3 as N Effluent mg/l	NO_2+NO_3 as N Load lb/day	Total Phosphorus as P Effluent mg/l	Total Phosphorus as P Load lb/day	Chloride mg/l
Snake Creek Drainage												
Andover	1.714	5.6	79	3.8	53	1.8	26	10.0	140	7.6	107	67
Carol City	2.030	21.8	368	17.4	296	4.3	73	2.2	37	9.0	154	36
Riverside Estates	0.362	11.0	31	1.9	6	9.0	25	16.0	46	16.4	50	43
Golden Isles	0.642	24.0	129	21.4	115	2.6	14	0.08	0.4	11.1	60	114
Myrtle Grove-City of North Miami	1.645	25.6	352	23.3	320	2.3	32	0.01	0.1	10.8	149	69
Country Club of Miami	0.185	1.8	2.8	0.5	0.8	1.3	2	1.3	2.0	6.8	11	30
Palm Springs North S.D.	0.447	26.3	98	25	93	1.3	4	0.5	2.0	13.7	51	68
Biscayne Canal and Little River Canal Drainage												
Miami Lakes Utilities	0.727	18.0	109	13.9	84	4.1	25	1.7	10.0	13.0	80	75
Seaboard Industrial Park	0.117	3.1	3	4.7	5	3.7	4	0.05	0.05	6.6	7	62
Opa Locka Airport-Dade County Port Authority	0.183	4.8	7.3	1.88	2.9	N.D.	N.D.	25.0	38.2	9.2	14.1	192
Miami River Drainage												
Atomic Sewerage	0.024	19.0	4	8.0	2	11.0	2	0.3	0.1	7.5	2	116
Doral Country Club	0.215	10.8	19	5.0	9	5.8	10	1.3	3	6.7	13	55
Coral Gables Waterway												
Lil' Abner Trailer Park	0.072	26.7	16	19.5	12	7.2	4	0.6	0.1	15.2	9	79
Pan American Hospital	0.036	1.9	0.6	0.7	0.2	1.2	0.4	12.4	4	2.1	0.6	118
Community Utilities	2.471	15.3	315	14.5	300	0.8	16	4.4	90	7.2	149	46
Snapper Creek Drainage												
Peninsular Utilities	2.500	20.5	427	19.4	405	1.3	27	0.02	0.1	9.4	195	36
Southern Estates	1.428	13.5	161	11.4	135	2.2	26	0.9	10	8.7	104	45
Westwood Lakes	1.970	25.1	413	19.2	316	5.9	97	0.26	4	11.8	194	57

Table A-4.--Average Concentrations and Effluent Load for Major Municipal Waste Sources for Dade County, Florida Nitrogen, Phosphorus and Chlorides--Continued

Facility	Flow MGD	Kheldahl Nitrogen as N Effluent mg/1	Kheldahl Nitrogen as N Load lb/day	Ammonia Nitrogen as N Effluent mg/1	Ammonia Nitrogen as N Load lb/day	Organic Nitrogen as N Effluent mg/1	Organic Nitrogen as N Load lb/day	NO_2+NO_3 as N Effluent mg/1	NO_2+NO_3 as N Load lb/day	Total Phosphorus as P Effluent mg/1	Total Phosphorus as P Load lb/day	Chloride mg/1
Black Creek Drainage												
South Miami Heights	1.089	22.2	202	18.0	164	4.2	38	1.1	10	13.6	123	N.D.3/
Cutler Ridge	2.195	9.3	172	7.4	135	2.0	37	0.9	18	10.0	185	69
Bell Aire S.D.1/	0.423	24.1	85	19.9	70	4.2	15	0.8	3	10.2	36	40
South Bay Drainage												
Homestead Air Force Base	2.116	3.5	60	2.0	34	1.5	25	6.8	119	6.9	119	119
City of Homestead	0.893	14.4	104	11.3	82	3.1	22	5.7	42	13.6	98	72
South Dade Labor Camp	0.126	13.3	14	8.5	9	4.9	5	2.3	2	7.4	2	47
Redlands Labor Camp2/	0.057	4.4	6	2.3	3	2.1	3	10.6	13	9.0	11	43
Leisure City2/	0.296	43.4	107	13.1	33	30.3	75	0.7	2	19.8	49	53
Atlantic Ocean												
Virginia Key-City of Miami	40.3	19.0	6,392	14.1	4,744	5.1	1,716	0.06	20	8.6	2,890	1,048
North Miami	13.5	12.7	1,433	6.5	734	6.2	700	.013	1.5	4.6	519	
Sunny Isles	1.5	38.4	481	26.4	331	12.0	78	0.025	.3	8.0	100	1,353
Miami Beach	21.8	26.4	4,799	19.0	3,454	7.4	1,349	0.048	8	8.8	1,599	979

1/ Contributes 40 percent to surface water, 60 percent to ground water.
2/ Ground water discharge.
3/ No data.

Table A-4.--Average Concentrations and Effluent Load for Major Municipal Waste Sources for Dade County, Florida
Nitrogen, Phosphorus and Chlorides

Facility	Flow MGD	Kjeldahl Nitrogen as N		Ammonia Nitrogen as N		Organic Nitrogen as N		NO_2+NO_3 as N		Total Phosphorus as P		Chloride
		Effluent mg/1	Load lb/day	Effluent mg/1	Load lb/day	Effluent mg/1	Load lb/day	Effluent mg/1	Load lb/day	Effluent mg/1	Load lb/day	mg/1
Snake Creek Drainage												
Andover	1.714	5.6	79	3.8	53	1.8	26	10.0	140	7.6	107	67
Carol City	2.030	21.8	368	17.4	296	4.3	73	2.2	37	9.0	154	36
Riverside Estates	0.362	11.0	31	1.9	6	9.0	25	16.0	46	16.4	50	43
Golden Isles	0.642	24.0	129	21.4	115	2.6	14	0.08	0.4	11.1	60	114
Myrtle Grove-City of North Miami	1.645	25.6	352	23.3	320	2.3	32	0.01	0.1	10.8	149	69
Country Club of Miami	0.185	1.8	2.8	0.5	0.8	1.3	2	1.3	2.0	6.8	11	30
Palm Springs North S.D.	0.447	26.3	98	25	93	1.3	4	0.5	2.0	13.7	51	68
Biscayne Canal and Little River Canal Drainage												
Miami Lakes Utilities	0.727	18.0	109	13.9	84	4.1	25	1.7	10.0	13.0	80	75
Seaboard Industrial Park	0.117	3.1	3	4.7	5	3.7	4	0.05	0.05	6.6	7	62
Opa Locka Airport-Dade County Port Authority	0.183	4.8	7.3	1.88	2.9	N.D.	N.D.	25.0	38.2	9.2	14.1	192
Miami River Drainage												
Atomic Severage	0.024	19.0	4	8.0	2	11.0	2	0.3	0.1	7.5	2	116
Doral Country Club	0.215	10.8	19	5.0	9	5.8	10	1.3	3	6.7	13	55
Coral Gables Waterway												
Lil' Abner Trailer Park	0.072	26.7	16	19.5	12	7.2	4	0.6	0.1	15.2	9	79
Pan American Hospital	0.036	1.9	0.6	0.7	0.2	1.2	0.4	12.4	4	2.1	0.6	118
Community Utilities	2.471	15.3	315	14.5	300	0.8	16	4.4	90	7.2	149	46
Snapper Creek Drainage												
Peninsular Utilities	2.500	20.5	427	19.4	405	1.3	27	0.02	0.1	9.4	195	36
Southern Estates	1.428	13.5	161	11.4	135	2.2	26	0.9	10	8.7	104	45
Westwood Lakes	1.970	25.1	413	19.2	316	5.9	97	0.26	4	11.8	194	57

Table A-5.--Median MPN and Average of Field Observations for Municipal Waste Source in Dade County, Florida

Facility	Flow MGD	Coliform		Influent		Effluent		
		Total MPN	Fecal MPN	Temperature °C.	pH S.U.	Temperature °C	pH S.U.	Chlorine Residual
Snake Creek Drainage								
Andover	1.714	20	18	26	7.6	24	6.8	2.0
Carol City	2.030	18	18	26	7.3	25	6.9	4.0
Riverdale Estates	0.362	18	18	26	7.5	23	4.6	6.8
Golden Isles	0.642	18	18	25	7.2	24	6.5	2.3
Myrtle Grove-City of North Miami	1.645	18	18	25	7.0	23	6.6	2.2
Country Club of Miami	0.185	20	18	24	6.5	23	6.5	1.0
Palm Springs North S.D.	0.447	18	18	25	7.2	23	6.7	1.8
Biscayne Canal and Little River Canal Drainage								
Miami Lakes Utilities	0.727	2,700,000	350,000	26	8.3	26	8.1	2.6
Seaboard Industrial Park	0.117			26	7.1	23	6.0	3.5
Opa Locka Airport-Dade County Port Authority	0.183			23	6.7	21	6.4	0
Miami River Drainage								
Atomic Sewerage	0.024	18	18	25	7.8	23	7.410	
Doral Country Club	0.215	20	20	29	6.8	28	6.8	4.2
Coral Gables Waterway								
Lil' Abner Trailer Park[1/]	0.072			25	7.8	22	6.6	N.D.
Pan American Hospital	0.036	18	18	29	7.3	25	5.7	3.4
Community Utilities	2.471	18	18	26	9.7	26	9.8	2.0
Snapper Creek Drainage								
Peninsular Utilities	2.500			26	8.3	25	8.1	4.4
Southern Estates	1.428	620	1,100	25	8.4	24	8.1	2.8
Westwood Lakes	1.970			24	7.8	23	6.7	2.5

Table A-5.--Median **MPN** and Average of Field Observations for Municipal Waste Source in Dade County, Florida--Continued

Facility	Flow MGD	Coliform		Influent		Effluent		
		Total MPN	Fecal MPN	Temperature °C	pH S.U.	Temperature °C	pH S.U.	Chlorine Residual
Black Creek Drainage								
South Miami Heights	1.089	410	32	26	7.2	27	7.0	1.1
Cutler Ridge	2.195	18	18	27	7.1	27	7.0	1.8
Bell Aire S.D.2/	0.423			24	7.4	22	6.6	1.5
South Bay Drainage								
Homestead Air Force Base	2.116	170	45	25	7.2	25	6.9	.5
City of Homestead	0.893	490	93	26	7.7	26	7.4	2.2
South Dade Labor Camp	0.126			23	6.7	21	6.5	3.3
Redland Labor Camp3/	0.057	18	18	26	7.3	25	7.3	2.3
Leisure City3/	0.296	40	18					
Atlantic Ocean								
Virginia Key-City of Miami	40.3	1,300	78	28	6.8	28	6.8	0.4
North Miami	13.5	ND	ND	ND	ND	ND	ND	ND
Sunny Isles	1.5	ND	ND	ND	ND	ND	ND	ND
Miami Beach	21.8	ND	ND	ND	ND	ND	ND	ND

1/ Single sample.
2/ Contributes 40 percent to surface water, 60 percent to ground water.
3/ Ground water discharge.
ND Not determined.

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day
	A. Atlantic Ocean & Biscayne Bay									
A-1	Coast Guard Station	0.0144	390	8	97.9	0.96	156	112	28.2	13.45
A-2	Shores Condominium	0.0200	333	59	82.3	9.84	200	80	60.0	13.34
	B. Snake Creek									
B-1	Dade Christian Schools	0.0150	136	42	69.1	5.25	72	13	81.9	1.63
	C. Biscayne Canal & Little River									
C-1	Food Fair Store #291	0.0150	276	3	98.9	0.38	896	46	94.9	5.75
C-2	Barry College	0.0300	204	29	85.8	7.26	356	46	87.0	11.51
C-3	Monsignor Pace High School	0.0300	130	17	86.9	4.25	104	34	67.3	8.51
C-4	Del-Ray Gardens	0.0060	225	12.5	94.4	0.62	124	14	88.7	0.70
C-5	Palm Springs Hospital	0.0140	152	29.0	80.9	3.39	202	21	89.6	2.45
C-6	Palm Springs Garden Condominium	0.0200	173.3	40.6	76.8	6.50	212	75.5	64.1	12.00
	D. Miami River									
D-1	Winn Dixie Stores	--	>770	--	--	--	2488	--	--	--
D-2	Hialeah City Hall	0.0400	272	26	90.4	8.68	296	52	82.4	17.35
D-3	Hialeah Hospital	0.0900	296	23	92.2	17.26	148	13	91.2	9.76
D-4	Hialeah Convalesent	0.0250	304	94	69.1	19.60	238	142	40.3	29.61

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids --Continued

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day
D-5	Kings Inn	0.0200	71.9	11.5	84.0	1.92	50	26	48.0	4.34
D-6	Holiday Inn	0.0250	194	1.96	98.7	0.41	40	10.4	74.0	2.17
D-7	Airport Lanes	0.0110	244	7	97.2	0.62	134	10	92.5	0.92
D-8	Midway Mall	0.0600	259	4	98.3	2.25	384	47	87.8	23.50
D-9	Air Traffic Control	0.0090	552	2.8	99.5	0.21	512	80	84.4	6.0
D-10	Howard Johnsons	0.0250	375	7.8	97.9	1.63	500	13	97.4	2.71
D-11	My-Am-Ee Trailer Park	0.0300	575	21.5	96.3	5.38	840	25	97.0	6.26
D-12	Blue Lake Trailer Park	0.0340	212	4.0	98.0	1.19	404	52	87.1	14.74
D-13	Medley Mobile Park	0.0030	241	10.0	95.9	0.25	122	27	77.9	0.68
D-14	Saratoga Springs Apartments	0.0130	159	76.0	52.2	8.24	776	88	88.7	9.54
D-15	Queen's Inn Hotel	--	73	10.0	86.3	--	102	20	80.4	--
D-16	79th Street Shopping Center	--	249	18.0	92.8	--	228	28	87.7	--
D-17	American Hospital Supply	0.0300	77	5.2	93.2	1.30	16	12	25.0	3.0
D-18	Miami Springs High School	0.0200	234	66.0	71.8	11.00	138	130	5.8	21.68
D-19	Country Club Garden Apartments	0.0200	251	3.8	98.5	0.63	198	27	86.4	4.50
	E. Coral Gables Waterway									
E-1	Westchester Hospital	0.0150	665	15	97.8	1.82	800	114	85.8	14.26

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids --Continued

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day
E-2	Goldberg Apartments	0.0100	212	8.5	96.0	0.71	108	22	79.6	1.83
E-3	Biltmore Hotel	---	10	1.2	88.0	--	26	10	61.5	--
E-4	Ludlam Plaza Apartments	0.0125	177	0.4	99+	0.4	12	12	0	1.25
	F. Snapper Creek									
F-1	Florida Portland Cement	0.0045	77	8	89.6	0.3	452	14	96.9	0.52
F-2	Jade Garden Apartments	--	531	5	99.1	--	4116	14	99.7	--
F-3	Miller Lake Apartments	0.0030	158	46	70.9	1.15	124	26	79	0.65
F-4	Lakeview Garden Apartments	0.0300	219	24	89.0	6.0	72	26	63.9	6.5
F-5	Kendale Lakes	0.0500	192	6	96.9	2.5	92	10	89.1	4.2
F-6	Kendale Complex	--	313	47	85.0	--	90	98	--	--
	G. Black Creek									
G-1	Camp Matecumbe	0.0350	130	7	94.5	2.10	104	10	90.4	2.90
G-2	Casa Granada Apartments	0.0200	179	6	96.4	1.07	208	6	97.1	1.00
G-3	El Rancho Apartments	0.0200	242	9	96.5	1.43	232	13	94.4	2.17
G-4	Naval Air Station	--	39.5	27	31.6	--	48	26	45.8	--
	H. South Bay									
H-1	Redlands Mobile Home Park	0.0150	365	17.4	95.2	2.18	332	21	93.7	2.63

Table A-6.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Biochemical Oxygen Demand and Total Suspended Solids--Continued

	Sewage Treatment Plant	Flow MGD	Biochemical Oxygen Demand				Total Suspended Solids			
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day
H-2	Helman Court Apartments	0.0250	>717	24	>96.7	4.98	496	166	66.5	34.60
H-3	Sweden House	0.0200	63	17.5	72.2	2.92	14	4	71.4	0.67
H-4	Steak & Brew Resturant	0.0150	>1240	10	>99.2	1.29	2790	30	98.9	3.75
H-5	Sea Glades Motel	--	133	23	82.7	—	90	30	67	--

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day	Inf. mg/l	Eff. mg/l	Removal %	Load lbs/day
	A. Atlantic Ocean & Biscayne Bay									
A-1	Coast Guard Station	0.0144	630	88	86.0	10.57	154	24	84.4	2.88
A-2	Shores Condominium	0.0200	713	223	68.7	37.20	165	55	66.7	9.17
	B. Snake Creek									
B-1	Dade Christian Schools	0.0150	573	120	79.1	15.01	110	27	75.5	3.38
	C. Biscayne Canal & Little River									
C-1	Food Fair #291	0.0150	604	60	90.1	7.50	155	15	90.3	1.88
C-2	Barry College	0.0300	636	66	89.6	16.52	65	21	67.7	5.25
C-3	Monsignor Pace High School	0.0300	666	57	91.4	14.26	105	19	81.9	4.75
C-4	Del-Ray Gardens	0.0060	803	31	96.1	1.55	165	5	97.3	0.25
C-5	Palm Springs Hospital	0.0140	718	137	80.9	16.00	72	44	39.3	5.13
C-6	Palm Springs Garden Condominium	0.0200	594	98	83.5	16.00	85.2	21.3	74.3	3.5
	D. Miami River									
D-1	Winn Dixie Stores	--	4218	--	--	--	1160	--	--	--
D-2	Hialeah City Hall	0.0400	800	134	83.2	44.7	125	44	64.8	14.68
D-3	Hialeah Hospital	0.0900	646	292	54.8	219.18	155	18	88.4	13.51
D-4	Hialeah Convalesent	0.0250	745	264	64.6	55.04	115	85	26.1	17.72

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon--Continued

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day
D-5	Kings Inn	0.0200	297	69	76.8	11.51	50	28	44.0	4.67
D-6	Holiday Inn	0.0250	534	46	91.4	9.59	118	16	86.4	3.34
D-7	Airport Lanes	0.0110	470	34	92.8	3.12	113	10	91.2	0.92
D-8	Midway Mall	0.0600	659	38	94.2	19.00	158	9	94.3	4.50
D-9	Air Traffic Control	0.0090	1135	40	96.5	3.00	340	9	97.4	0.68
D-10	Howard Johnsons	0.0250	1460	66	95.9	13.76	202.5	27	86.7	5.63
D-11	My-Am-Ee Trailer Park	0.0300	2395	100	95.8	25.00	230	57	75.2	14.26
D-12	Blue Lake Trailer Park	0.0340	679	54	92.1	15.31	105	20	81.0	5.67
D-13	Medley Mobile Home Park	0.0030	747	54	92.8	1.35	118	24	79.7	0.60
D-14	Saratoga Springs Apartments	0.0130	939	154	83.4	16.69	145	45	69.0	4.88
D-15	Queens Inn Hotel	--	245	69	71.8	--	37	14	62.2	--
D-16	79th Street Shopping Center	--	967	79	91.8	--	145	20	86.2	--
D-17	American Hospital Supply	0.0300	134	39	70.9	9.76	125	13	89.6	3.25
D-18	Miami Springs High School	0.0200	638	221	65.4	36.86	135	55	59.3	9.17
D-19	Country Club Garden Apartments	0.0200	648	35	94.6	5.84	160	13	91.9	2.17
	E. Coral Gables Waterway									
E-1	Westchester Hospital	0.0150	479	475	0.8	59.42	200	32	83.8	4.06

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon--Continued

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day
E-2	Goldberg Apartments	0.0100	626	91	85.5	7.59	135	20	85.2	1.67
E-3	Biltmore Hotel	--	575	17	97.0	--	11	11	0	--
E-4	Ludlam Plaza Apartments	0.0125	483	43	91.1	4.48	78	18	76.9	1.88
	F. Snapper Creek									
F-1	Florida Portland Cement	0.0045	507	95	81.3	3.56	175	41	76.6	1.54
F-2	Jade Garden Apartments	--	8671	49	99.4	--	1125	22	98.0	--
F-3	Miller Lake Apartments	0.0030	397	136	65.7	3.4	60	42	30	1.05
F-4	Lakeview Garden Apartments	0.0300	601	34	94.3	8.5	250	13	94.8	3.25
F-5	Kendale Lakes	0.0500	480	26	94.6	10.87	145	15	98.7	6.3
F-6	Kendale Complex	--	714	177	75	--	155	85	45.0	--
	G. Black Creek									
G-1	Camp Matecumbe	0.0350	572	24	95.8	7.00	92	9	90.3	2.63
G-2	Casa Granada Apartments	0.0200	565	26	95.4	4.34	95	22	76.3	3.75
G-3	El Rancho Apartments	0.0200	626	28	95.5	4.67	262	30	88.4	5.09
G-4	Naval Air Station	--	624	66	89.4	--	37	12	67.6	--
	H. South Bay									
H-1	Redlands Mobile Home Park	0.0150	680	61	91.0	7.63	92.5	24	74.1	3.0
H-2	Helman Court Apartments	0.0250	1526	86	94.5	17.90	350	19	94.6	3.96

Table A-7.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Chemical Oxygen Demand and Total Organic Carbon--Continued

	Sewage Treatment Plant	Flow MGD	Chemical Oxygen Demand				Total Organic Carbon			
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day
H-3	Sweden House	0.0200	498	44	91.2	7.34	25.5	37.5	--	6.26
H-4	Steak & Brew Resturant	0.0150	20,533	53	99.7	6,63	2400	20	99.2	2.50
H-5	Sea Glades Motel	--	370	131	64.6	--	65	34	47.7	--

Table A-8.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Volatile Suspended Solids and Settleable Solids

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %
	A. Atlantic Ocean & Biscayne Bay								
A-1	Coast Guard	0.0144	138	92	33.3	11	2.5	0	100
A-2	Shores Condominium	0.0200	180	36	80.0	6.0	2.5	4.0	--
	B. Snake Creek								
B-1	Dade Christian Schools	0.0150	--	--	--	--	0.3	0	100
	C. Biscayne Canal & Little River								
C-1	Food Fair Store #291	0.0150	36	36	0	4.5	0.0	0.0	--
C-2	Barry College	0.0300	236	36	84.8	9.0	5.0	0.3	94
C-3	Monsignor Pace High School	0.0300	--	--	--	--	0.2	0.1	50.0
C-4	Del-Ray Gardens	0.0060	110	13.4	87.8	0.7	0.2	0	100
C-5	Palm Springs Hospital	0.0140	192	17	91.1	2.0	3.0	0.1	96.7
C-6	Palm Springs Garden Condominium	0.0200	109	100.5	17.8	17.5	3.0	0	100
	D. Miami River								
D-1	Winn-Dixie Stores	--	0	--	--	--	7.5	--	--
D-2	Hialeah City Hall	0.0400	--	--	--	--	15.0	0.1	99.3
D-3	Hialeah Hospital	0.0900	--	--	--	--	2.5	0	100
D-4	Hialeah Convalesent	0.0250	--	--	--	--	1.0	5.0	--

Table A-8.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Volatile Suspended Solids and Settleable Solids -- Continued

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %
D-5	Kings Inn	0.0200	22	3	86.4	0.5	2.5	NIL	100
D-6	Holiday Inn	0.0250	20	8	60.0	1.7	3.5	0.1	97.1
D-7	Airport Lanes	0.0110	88	8	90.9	0.7	0.5	0.0	100
D-8	Midway Mall	0.0600	84	43	48.8	21.5	3.0	0.0	100
D-9	Air Traffic Control	0.0090	12	11	8.3	0.8	>40	0.0	100
D-10	Howard Johnsons	0.0250	430.5	12	97.2	2.5	16	0.1	99.4
D-11	My-Am-Ee	0.0300	740	27	96.4	6.8	740	0.2	99.9
D-12	Blue Lake Trailer Park	0.0340	392	40	89.8	11.34	1.4	0.7	50.0
D-13	Medley Mobile Home Park	0.0030	116	24	79.3	0.6	0.7	0.1	85.7
D-14	Saratoga Springs Apartments	0.0130	760	112	85.3	12.1	5	0.5	90
D-15	Queens Inn Hotel	--	52	12	76.9	--	0.5	0	100
D-16	79th Street Shopping Center	--	192	20	89.6	--	4	0	100
D-17	American Hospital Supply	0.0300	12	8	33.3	2.0	0.2	0	100
D-18	Miami Springs High School	0.0200	94	82	12.8	13.7	2.5	3.0	--
D-19	Country Club Garden Apartments	0.0200	126	20	84.1	3.3	2.5	0	100
	E. Coral Gables Waterway								
E-1	Westchester Hospital	0.0150	740	104	86.0	13.01	>40.0	0.2	99.5

Table A-8.--Average Efficiencies and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Volatile Suspended Solids and Settleable Solids -- Continued

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %
E-2	Goldberg Apartments	0.0100	96	18	81.5	1.5	0	0	—
E-3	Biltmore Motel	--	20	6	70.0	--	0.1	0	100
E-4	Ludlam Plaza Apartments	0.0125	10	8	20.0	0.83	0.1	0	100
	F. Snapper Creek Canal								
F-1	Florida Portland Cement	0.0045	424	4	99.1	0.15	0.8	0	100
F-2	Jade Gardens Apartments	--	3768	10	99.7	--	18	0.1	99.4
F-3	Miller Lake Apartments	0.0030	96	14	85.4	0.35	2	0	100
F-4	Lakeview Garden Apartments	0.0300	56	12	78.6	3.0	0.3	0	100
F-5	Kendale Lakes	0.0500	68	6	91.2	2.5	6	0	100
F-6	Kendale Complex	--	66	90	--	--	0.5	0.2	60
	G. Black Creek								
G-1	Camp Matecumbe	0.0350	84	8	90.5	2.34	0.5	0.1	80.0
G-2	Casa Granada Apartments	0.0200	176	2	98.9	0.33	3.0	0	100
G-3	El Rancho Apartments	0.0200	152	6	96.1	1.0	6.0	0	100
G-4	Naval Air Station	--	34	12	64.7	--	0.5	0	100
	H. South Bay								
H-1	Redlands Mobile Home Park	0.0150	86	14	83.7	1.75	6	NIL	100

Table A-8.--Average Efficiencies and Loadings for Minor Wastewater Treatment Plants in Dade County, Florida

Volatile Suspended Solids and Settleable Solids--Continued

	Sewage Treatment Plant	Flow MGD	Volatile Suspended Solids				Settleable Solids		
			Inf. mg/1	Eff. mg/1	Removal %	Load lbs/day	Inf. mg/1	Eff. mg/1	Removal %
H-2	Helman Court Apartments	0.0250	448	156	65,2	32,50	4,0	0.1	97.5
H-3	Sweden House	0,0200	6	4	33.3	0.68	1	NIL	100
H-4	Steak & Brew Resturant	0,0150	2778	16	99.4	2,0	>40,0	0	100
H-5	Sea Glades Motel	--	92	21	77	—	6	0,1	98.3

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrite Nitrate N		Total Phosphorus	
			Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day
	A. Atlantic Ocean & Biscayne Bay											
A-1	Coast Guard Station	0.0144	3.5	0.42	1.8	0.22	1.7	0.20	9.8	1.18	12.1	1.45
A-2	Shores Condominium	0.0200	20.2	3.37	1.0	0.17	19.2	3.20	0.2	0.03	10.4	1.73
	B. Snake Creek											
B-1	Dade Christian Schools	0.0150	9.5	1.19	8.0	1.00	1.5	0.19	136.0	17.01	6.5	0.81
	C. Biscayne Canal & Little River											
C-1	Food Fair Store #291	0.0150	2.2	0.28	0.3	0.04	1.9	0.24	15.0	1.88	5.6	0.70
C-2	Barry College	0.0300	5.9	1.48	3.4	0.85	2.5	0.62	11.4	2.85	9.3	2.32
C-3	Monsignor Pace High School	0.0300	7.3	1.83	6.0	1.50	1.3	0.32	28.5	7.13	8.5	2.13
C-4	Del-Ray Gardens	0.0060	1.1	0.055	0.02	0.001	1.08	0.054	0.6	0.03	7.2	0.36
C-5	Palm Springs Hospital	0.0140	18.1	2.11	6.6	0.77	11.5	1.34	0.2	0.023	9.8	1.14
C-6	Palm Springs Garden Condominium	0.0200	17.7	3.00	15.3	2.50	2.4	0.50	2.7	0.50	9.6	1.50
	D. Miami River											
D-1	Winn Dixie Stores	--	--	--	--	--	--	--	--	--	--	--
D-2	Hialeah City Hall	0.0400	14.6	4.87	12.0	4.0	2.6	0.87	4.0	1.33	7.1	2.37
D-3	Hialeah Hospital	0.0900	8.1	6.08	9.0	6.76	None	--	10.5	7.80	7.0	5.25
D-4	Hialeah Convalescent Home	0.0250	25.5	5.32	19.0	3.96	6.5	1.36	0.5	0.10	6.1	1.27

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus -- Continued

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrate Nitrate N		Total Phosphorus	
			Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day
D-5	Kings Inn	0.0200	14.0	2.34	11.2	1.87	2.8	0.47	13.0	2.17	5.2	0.87
D-6	Holiday Inn	0.0250	20.2	4.21	16.8	3.50	3.4	0.71	1.8	0.38	8.8	1.83
D-7	Airport Lanes	0.0100	8.4	0.77	7.8	0.72	0.6	0.055	20.0	1.84	6.6	0.60
D-8	Midway Mall	0.0600	1.7	0.85	1.0	0.50	0.7	0.35	3.4	1.70	0.8	0.40
D-9	Air Traffic Control	0.0090	14.8*	1.11	20.0*	1.50	--	--	120.0	9.00	2.8	0.21
D-10	Howard Johnsons	0.0250	10.6	2.21	9.6	2.00	1.0	0.20	3.2	0.67	1.7	0.35
D-11	My-Am-Ee Mobile Home Park	0.0300	11.8	2.95	8.9	2.23	2.9	0.73	0.2	0.05	15.3	3.83
D-12	Blue Lakes Trailer Park	0.0340	3.1	0.88	0.5	0.14	2.6	0.74	1.6	0.45	14.3	4.05
D-13	Medley Mobile Home Court	0.0030	3.4	0.08	2.2	0.06	1.2	0.03	0.4	0.01	8.8	0.22
D-14	Saratoga Springs Apartments	0.0130	10.5	1.14	2.8	0.30	7.7	0.83	12.4	1.34	6.9	0.75
D-15	Queens Inn Hotel	--	26.2	--	18.4	--	7.8	--	0.1	--	5.8	--
D-16	79th Street Shopping Center	--	2.4	--	0.2	--	2.2	--	40.0	--	24.0	--
D-17	American Hospital Supply	0.0300	1.3	0.32	0.8	0.20	0.5	0.12	3.8	0.95	0.4	0.10
D-18	Miami Springs High School	0.0200	55.1	9.19	43.2	7.20	11.9	1.98	0.03	0.005	9.0	1.50
D-19	Country Club Garden Apartments	0.0200	2.1	0.35	0.5	0.083	1.6	0.267	7.8	1.30	5.5	0.92
	E. Coral Gables Waterway											
E-1	Westchester Hospital	0.0150	8.4	1.05	6.2	0.78	2.2	0.28	1.1	0.14	5.7	0.72

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus -- Continued

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrite Nitrate N		Total Phosphorus	
			Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day
E-2	Goldberg Apartments	0.0100	19.7	1.64	16.8	1.40	2.9	0.24	19.2	1.60	11.9	0.99
E-3	Biltmore Hotel	--	0.6	--	0.2	—	0.4	—	0.05	—	0.02	—
E-4	Ludlam Plaza Apartments	0.0125	3.5	0.36	2.3	0.24	1.2	0.12	23.0	2.40	13.6	1.42
	F. Snapper Creek											
F-1	Florida Portland Cement	0.0045	2.1	0.08	0.08	0.003	2.02	0.076	9.4	0.35	5.8	0.22
F-2	Jade Gardens Apartments	--	15.1	--	14.8	—	0.3	—	0.1	—	9.0	—
F-3	Miller Lake Apartments	0.0030	22.3	0.56	20.0	0.50	2.3	0.058	0.04	0.001	12.1	0.30
F-4	Lakeview Garden Apartments	0.0300	4.8	1.20	3.1	0.78	1.7	0.42	2.2	0.55	11.2	2.80
F-5	Kendale Lakes	0.0500	1.2	0.50	0.04	--	1.16	0.05	0.78	0.30	5.1	2.10
F-6	Kendale Complex	--	8.5	--	4.98	—	—	—	0.01	—	2.3	—
	G. Black Creek											
G-1	Camp Matecumbe	0.0350	1.1	0.32	0.4	0.12	0.7	0.20	13.8	4.03	3.8	1.11
G-2	Casa Granada Apartments	0.0200	--	--	1.8	0.30	—	—	4.8	0.80	8.0	1.33
G-3	El Rancho Apartments	0.0200	2.5	0.42	1.0	0.17	1.5	0.25	16.4	2.74	3.6	0.60
G-4	Naval Air Station	--	10.0	--	9.1	—	0.9	—	0.01	--	7.1	—
	H. South Bay											
H-1	Redlands Mobile Home Park	0.0150	14.8	1.85	13.6	1.70	1.2	0.15	0.2	0.025	8.4	1.05

Table A-9.--Average Effluent Concentrations and Effluent Load for Minor Wastewater Treatment Plants, Dade County, Florida

Nitrogen and Phosphorus -- Continued

	Sewage Treatment Plant	Flow MGD	Kjeldahl Nitrogen		Ammonia Nitrogen		Organic Nitrogen		Nitrite Nitrate N		Total Phosphorus	
			Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day	Conc. mg/1	Load lbs/day
H-2	Helman Court Apartments	0.0250	14.3	2.98	6.4	1.33	7.9	1.65	4.0	0.83	7.7	1.60
H-3	Sweden House	0.0200	3.1	0.52	1.0	0.17	2.1	0.35	1.0	0.17	12.0	2.00
H-4	Steak & Brew Resturant	0.0150	2.5	0.31	1.6	0.20	0.9	0.11	<0.1	<0.01	1.4	0.18
H-5	Sea Glades Motel	--	19.5	--	18.2	--	1.3	--	0.2	--	5.0	--

Table A-10.--Average Temperature, Chlorine Residual, and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida

	Sewage Treatment Plant	Flow MGD	Temperature		Clorine Residual mg/l	Chloride Conc. mg/l
			Inf. °C	Eff. °C		
	A. Atlantic Ocean & Biscayne Bay					
A-1	Coast Guard Station	0.0144	86	82	1.0	83
A-2	Shores Condominium	0.0200	27	27	2.0	87
	B. Snake Creek					
B-1	Dade Christian Schools	0.0150	27	27	0.5	136
	C. Biscayne Canal & Little River					
C-1	Food Fair Store #291	0.0150	27	27	2.0	110
C-2	Barry College	0.0300	27	27	0.0	70
C-3	Monsignor Pace High School	0.0300	27	27	1.8	108
C-4	Del-Ray Gardens	0.0060	85	80	10+	104
C-5	Palm Springs Hospital	0.0140	80	80	10+	120
C-6	Palm Springs Garden Condominium	0.0200	26.1	24.9	5	77.2
	D. Miami River					
D-1	Winn Dixie Stores	--	27	--	--	168 in
D-2	Hialeah City Hall	0.0400	27	27	0.9	75 in
D-3	Hialeah Hospital	0.0900	34	27	2.5	108
D-4	Hialeah Convalescent Home	0.0250	27	27	1.5	79

Table A-10.--Average Temperature, Chlorine Residual, and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Sewage Treatment Plant	Flow MGD	Temperature		Clorine Residual mg/1	Chloride Conc. mg/1
			Inf. °C	Eff. °C		
D-5	Kings Inn	0.0200	27	27	5.0	62
D-6	Holiday Inn	0.0250	27	27	10.0	70
D-7	Airport Lanes	0.0110	27	27	5.0	54
D-8	Midway Mall	0.0600	27	27	2.0	46
D-9	Air Traffic Control	0.0090	27	27	10.0	171
D-10	Howard Johnsons	0.0250	--	--	0	119
D-11	My-Am-Ee Mobile Home Park	0.0300	27	27	10.0	54
D-12	Blue Lakes Trailer Park	0.0340	29	27	--	57
D-13	Medley Mobile Home Court	0.0030	85	80	1.5	86
D-14	Saratoga Springs Apartments	0.0130	80°F	80°F	0.1	--
D-15	Queens Inn Hotel	--	80°F	78°F	0.5	61
D-16	79th Street Shopping Center	--	80°F	80°F	<0.1	102
D-17	American Hospital Supply	0.0300	78°F	75°F	2.0	40
D-18	Miami Springs High School	0.0200	84°F	78°F	2.0	104
D-19	Country Club Garden Apartments	0.0200	82°F	78°F	2.0	58
	E. Coral Gables Waterway					
E-1	Westchester Hospital	0.0150	30	27	1.5	39

	Sewage Treatment Plant	Flow MGD	Temperature		Clorine Residual mg/1	Chloride Conc. mg/1
			Inf. °C	Eff. °C		
E-2	Goldberg Apartments	0.0100	88	82	0.25	67
E-3	Biltmore Hotel	--	78°F	78°F	0.1	21
E-4	Ludlam Plaza Apartments	0.0125	82	80	0	46
	F. Snapper Creek					
F-1	Florida Portland Cement	0.0045	80°F	80°F	3	103
F-2	Jade Gardens Apartments	--	85	82	0	48
F-3	Miller Lake Apartments	0.0030	86°F	80°F	0.25	71
F-4	Lakeview Garden Apartments	0.0300	85°F	80°F	0.1	43
F-5	Kendale Lakes	0.0500	75	72	0.5	28
F-6	Kendale Complex	--	75	72	2	55
	G. Black Creek					
G-1	Camp Matecumbe	0.0350	27	27	0	40
G-2	Casa Granada Apartments	0.0200	27	27	3.0	86
G-3	El Rancho Apartments	0.0200	27	27	1.5	67
G-4	Naval Air Station	--	78	78	0	318
	H. South Bay					
H-1	Redlands Mobile Home Park	0.0150	27	27	10.0	26

Table A-10.--Average Temperature, Chlorine Residual, and Chloride Concentration for Minor Wastewater Treatment Plants in Dade County, Florida--Continued

	Sewage Treatment Plant	Flow MGD	Temperature		Clorine Residual mg/1	Chloride Conc. mg/1
			Inf. ^{o}C	Eff. ^{o}C		
H-2	Helman Court Apartments	0.0250	27	27	0.0	43
H-3	Sweden House	0.0200	28	27	0.15	138
H-4	Steak & Brew Resturant	0.0150	27	27	3.0	110
H-5	Sea Glades Motel	--	80	80	1.5	139

APPENDIX 11

RULE 7

REGULATION OF THE USE OF SANITARY AND STORM SEWERS AND THE DISCHARGE OF WATERS AND WASTES INTO UTILITIES' SEWERAGE SYSTEMS.

RULE 7

REGULATION OF THE USE OF SANITARY AND STORM SEWERS AND THE DISCHARGE OF WATERS AND WASTES INTO UTILITIES' SEWERAGE SYSTEMS

APPROVED AND EFFECTIVE JUNE 20, 1966, BY RESOLUTION NO. R-606-66 OF THE BOARD OF COUNTY COMMISSIONERS OF DADE COUNTY, FLORIDA.

RULE 7

Regulating the use of sanitary and storm sewers and the discharge of waters and wastes into utilities sewerage systems, and providing penalties.

SECTION 1: Unless the context specifically indicates otherwise, the meaning of terms used in this rule shall be as follows:

(a) "Sewage Works" is a comprehensive term which includes facilities for collecting, pumping, treating and disposing of sewage.

(b) "Sewage" shall mean a combination of the water carried wastes from dwellings, business buildings, institutions, and industrial establishments. In effect it is the water supply of a community after it has been used and discharged into a sewer.

(c) "Sanitary Sewer" shall mean a sewer which carries sewage and to which storm, surface and ground waters are not intentionally admitted.

(d) "Storm Sewer" shall mean a sewer which carries storm and surface waters and drainage, but excludes sewage and polluted industrial wastes.

(e) "Industrial Wastes" shall mean the liquid wastes from industrial processes as distinct from sanitary sewage.

(f) "Garbage" shall mean solid wastes from the preparation, cooking and dispensing of food and from the handling, storage and sale of produce.

(g) "B.O.D." (denoting Biochemical Oxygen Demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in 5 days at 20 degrees Centigrade, expressed in parts per million.

(h) "pH" shall mean the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

(i) "Suspended Solids" shall mean solids that either float on the surface of, or are in suspension in water, sewage or other liquids and which are largely removeable by laboratory filtering.

(j) "Person" shall mean any individual, firm, company, association, society, corporation or group.

(k) "P.P.M." shall mean parts per million by weight.

SECTION 2: Prohibited Wastes.

(a) No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof runoff, subsurface drainage, cooling water or unpolluted industrial or commercial process water into any sanitary sewer.

(b) The discharge of cooling water from air conditioning units is prohibited. Cooling water free from bacteria and harmful chemicals should be discharged into storm water sewers. Except as hereinafter provided, no person shall discharge or cause to be discharged any of the following described wastes or waters to any public sewer:

1. Any liquid having a temperature higher than 150 degrees Fahrenheit.

2. Any water or waste containing more than 100 p.p.m. or exceed a daily average of 25 p.p.m. of any grease or oil or any oily substance.

3. Any gasoline, benzene, naptha, fuel oil or other flammable or explosive liquid, solid or gas.

4. Any waters or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, or create any hazard in the receiving waters of the sewage treatment plant.

5. Any garbage that has not been properly shredded, which shall mean the wastes from the preparation, cooking and dispensing of food that have been shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle size greater than 1/2 inch in any dimension.

6. Any waters or wastes having a pH lower than 5.5 or higher than 9.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment or personnel of the sewage works.

7. Any water or waste containing toxic substances in quantities in excess of the following limits and measured at the point of discharge into the sewer system:

Cyanides - - - - - - - - 0.01 p.p.m.
Copper, total - - - - 0.5 p.p.m.
Chromium, hexavalent - 0.5 p.p.m.
Chromium, total - - - 1.0 p.p.m.
Cadmium - - - - - - - 0.5 p.p.m.
Zinc, total - - - - - 1.0 p.p.m.

Or any substance that will pass through the sewage treatment plant and exceed the state requirements for the receiving stream.

Any water or waste containing phenols in excess of 0.005 p.p.m.

Any water or waste containing suspended solids or color of such character and quantity that unusual attention or expense is required to handle such materials at the sewage treatment plant, without a special permit.

Any toxic radioactive isotopes, without a special permit.

No statement contained in this section shall be construed as prohibiting any special agreement or arrangement, between the utility and any person whereby an industrial waste of unusual strength or character may be admitted into the sanitary sewers for treatment by the utility either before or after pretreatment.

SECTION 3: Admission of Industrial Waste.

(a) Treatment of Industrial Wastes - The economy and desireability of the combined treatment of industrial wastes and sanitary sewage is recognized. However, not all types and quantities of industrial wastes can be so treated. Hence, it shall be the established policy to admit these types and quantities of industrial wastes that are not harmful or damaging to the structures, processes or operation of the sewage works or are not specifically prohibited by this rule.

It is also recognized that to provide this service additional facilities are required and the cost of which must be borne by those persons receiving its benefits.

(b) Approval Required for Industrial Wastes- In order to control the admission of industrial wastes, the discharge into the public sewers of any waters or wastes having:

1. A five day 20 degree Centigrade B.O.D. greater than 300 p.p.m. or
2. A suspended solids content greater than 350 p.p.m., or
3. A chlorine demand greater than 15 p.p.m., or
4. An average daily flow greater than 2% of the average daily sewage flow at the sewage treatment works, or
5. Any toxic substance, or
6. Any wastes which are considered by the Superintendent of the Sewage Treatment Works to offer possibilities or harm to structures, processes, or operation of the plant.

shall be subject to review and approval of the utility.

(c) Sewerage Systems Connected to an Ocean Outfall - When industrial wastes are discharged to a sewerage system utilizing an ocean outfall, items 1 through 3, Section 3(b) shall not be applicable unless it is being treated by a sewage treatment plant where the loading of the biological treatment unit would be a factor.

(d) Survey Data Required - All users of the sewage system who are now discharging industrial wastes to the public sewers shall upon request of the sewage treatment plant Superintendent, fill in and file with the plant superintendent, within three months, a questionnaire — which shall furnish pertinent data, inclusive of quantity of flow and an analysis of the water discharged to the sewage treatment plant.

Similarly any person desiring to make a new connection to the sewage system for the purpose of discharging industrial wastes to the public sewers, shall fill in and file with the sewage treatment plant superintendent an industrial waste questionnaire which shall furnish pertinent or predicted data inclusive of quantity of flow and an analysis of the industrial waste to be discharged into the sewer system.

(e) Sampling and Analysis - Samples shall be a composite sample collected daily over a three day period of operation so as to be a truly representative sample of the actual quality of the wastes. Sample, for analysis, must be collected by the engineer, chemist or his representative. Analysis shall be made by a registered Sanitary Engineer, or a graduate Chemist whose qualifications are acceptable to the Health Department, or Class A & B waste water treatment plant operator, registered in Florida, using the laboratory methods for the examination of industrial waste as set forth in the latest edition of "Standard Methods for Examination of Water and Sewage" as published by the American Public Health Service.

(f) Extension of Time - When, due to the size or complexity of the waste disposal problem of an industry, it can be shown that it is impractical to meet the schedule imposed under Section 3(c) above, a request for an extension of time may be presented to the plant superintendent.

(g) Control Manhole - Any establishment discharging industrial wastes into the sewage system shall construct and maintain at his expense a suitable control manhole, or manholes downstream from any treatment, storage or other approved works, to facilitate observation, measurement and sampling of all wastes, including domestic sewage, from the establishment.

The control manhole or manholes shall be constructed at suitable and satisfactory locations and built in a manner approved by the Sewage Treatment Plant superintendent.

The control manhole shall be accessable to the Sewage Treatment Plant superintendent or his representatives at all times for sampling.

(h) Pretreatment - When required, the user of the utility sewer system shall provide at his expense such preliminary treatment or handling as may be necessary to modify the objectionable characteristics, or constituents to come within the limits set forth in Section 3(b) of this rule.

SECTION 4: The Sewage Treatment Plant Superintendent and other duly authorized employees of the utility bearing proper credentials and identification shall be permitted to enter upon all properties for the purposes of inspection, observation, measurement, sampling and testing in accordance with the provisions of this rule.

MR. WHITE: Are there any comments or questions by the conferees?

MR. TRAINA: I would like to ask Mr. Hagan a few questions. First, maybe just a comment is in order.

I notice, Mr. Hagan, there are several Federal facilities in this report that are not meeting the local standards. And I just for the record want to assure the State conferees and other people here this is being brought to our attention and will be acted on. I would hope that the Federal facilities mentioned here may be represented by individuals that may want to speak to these reasons why those facilities are not meeting the standards.

I have questions, Mr. Hagan, in regard to this industrial waste survey. You indicated that a report would be available by September 1. Will this report include an evaluation of the efficiencies and recommendations for immediate measures if needed?

MR. HAGAN: Yes. I would say that the report would include recommendations and the treatment efficiencies based on the sampling that has been recently completed.

MR. TRAINA: I notice in Table 4 of the report, there are some recommendations. I assume these would be pursued further and made more specific in your September 1 report.

MR. HAGAN: Yes. The recommendations concerning industrial inventory which are included in the present report were made on the basis of an inspection, a visual inspection. They were designed for the purpose of guiding further investigation, a point of beginning for further investigations. And they were used for that purpose in the study that has just been completed.

MR. TRAINA: One further question. In your proposed recommendations #1 and #4, you talk about 90 percent removal efficiency of BOD and total suspended solids. I assume you also include disinfection in these recommendations.

MR.HAGAN: Yes. It is a requirement for the State Air & Water Pollution Control Board.

MR. TRAINA: It is not specifically listed.

MR. HAGAN: It is not specifically listed, but that is a Statewide requirement.

MR. PATTON: Mr. Traina, that is a Statewide requirement that has been approved and also a Federal requirement.

MR. TRAINA: I wanted the record to indicate disinfection would be also included.

That is all the questions I have.

MR. WHITE: Mr. Levin.

MR. LEVIN: No.

MR. WHITE: Mr. Patton.

MR. PATTON: Mr. Hagan, you mentioned about the lack of good operation in some of these plants. Are you familiar with what may be the view of support from the Federal level when it comes from EPA or Federal agencies as far as the support for operator training and upgrading?

MR. HAGAN: I am not specifically familiar with this. I know we do have an operator training program. And perhaps the Federal people could speak to that.

MR. TRAINA: I could speak to that point in a general way, Vincent. We have been working with the Department of Labor, Department of HEW, using Federal funds in manpower development to put into the specific area of operator training, both on-the-job training as well as academic training. We have had several schools in this region -- the Atlanta school in which a curriculum has been set up and funds are available to individuals to pursue this training.

Also, I can't recall the specific amendment, but the Federal Act does call for a Federal EPA type of subsidy or grant for technicians and plant operators to be administered directly by EPA. We understand some funds are in the budget for 1972 to support that program.

MR. PATTON: So you won't really know what the picture will be for the coming year until Congress makes a move.

MR. TRAINA: As far as your funds are concerned. And we have been using, I think, rather effectively funds of other agencies -- namely, Labor Department funds under the Manpower Development Act -- to put into both State and local programs for operator training.

MR. BATTON: I just wanted to make a point for the record, Paul, that I think when the emphasis is getting to be greater and greater to require better operation, the plant sizes are increasing, they are becoming more complex, it is very, very important that we try to do all that we can to make a better quality operation available. Regardless of how good the engineers and how good the time is, if we don't have that operation, then the plant is not going to perform. So I think we have to try to get as much assistance here as we can.

MR. TRAINA: The need has been recognized, and it is being implemented to the best of our ability right now.

MR. WHITE: Mr. Hagan, with respect to completion of your inventory, I would urge you to give priority attention to those industries discharging in the surface waters so that that information will be available to the State and Federal agencies for reviewing the permit that should have been submitted by these industries under the Refuse Act permit program.

MR. HAGAN: Yes.

MR. WHITE: They are due today, and this would be most helpful in giving a priority review to these projects. And maybe we can in conjunction with the study issue some orders or establish some conditions governing these discharges.

MR. PATTON: Mr. Chairman, I would hope this is already approved for a State permit, and they have gone through the Dade County Pollution Control Officer so they don't run afoul of the State before the control even gets a chance at them.

MR. WHITE: This is the first time we have really gotten into the procedural picture.

MR. PATTON: We welcome you aboard.

MR. WHITE: I do think this type data will be very beneficial because the companies have to report as to the nature of their discharges. However, I think we need to verify in many instances. And this will be most helpful in giving priority attention to these particular discharges.

MR. HAGAN: I see no difficulty with making copies of the data available almost immediately.

MR. WHITE: Thank you.

MR. PATTON: Mr. Chairman, I would like to ask Mr. Hagan one other question he may not want to answer at this time. He may want to wait until September.

What type of overall picture as far as industrial waste discharges do you foresee after completing this work from the airport -- with my qualification you may not want to answer that.

MR. HAGAN: Mr. Patton, I would have to pass on that one. As you know, I have been transferred to Southeast Water Laboratory and have not personally been active in this phase of the operation.

MR. PATTON: I will wait until September.

MR. HAGAN: I am just not familiar enough with it to make a comment.

MR. WHITE: Any other comments?

We don't entertain questions from the floor. You are on the speaker's list, are you not, sir?

If you will reserve your statement to that time, we would appreciate it.

Thank you very much, Mr. Hagan.

MR. TRAINA: The next individual we have is Mr. Gail Gren who is from the Corps of Engineers in Jacksonville.

Mr. Gren. I hope I pronounced that right.

GAIL C. GREN

CHIEF, OPERATIONS DIVISION

CORPS OF ENGINEERS

JACKSONVILLE DISTRICT

MR. GREN: Mr. Chairman, conferees, my name is Gail Gren. I am Chief of the Operations Division, Jacksonville District, Corps of Engineers. You probably will recognize, those of you who have been here at other sessions, that my face is new. Mr. McKnight has retired, and I have replaced Mr. McKnight, or attempted to replace this fine, fine gentleman.

On behalf of the Corps of Engineers, I would like to report to this session on our activities in removal of derelict vessels in the Miami River as requested at the first session of this conference.

The Corps of Engineers' activities in the cleanup of the Miami River have been confined generally to the removal of derelict vessels. A careful inspection made of the Miami River downstream of 36th Street in December of 1970 identified 12 derelict vessels subject to removal. Today the Corps is pleased to report that all 12 vessels have been removed. Seven of the 12 vessels were removed by the owners following contacts made by the Corps of Engineers. The owners of the other 5 vessels could not be determined and were removed by the Corps of Engineers under the provisions of Section 19 of the Rivers and Harbors Act of 3 March 1899.

It is our hope that the Marine Patrol and other interested parties will keep our Resident Engineer at Miami Beach informed of any vessels that may be placed along the banks of the river in a sinking or dangerous condition in order that we can make contact with the owners and prevent an accumulation of sunken vessels such as we have experienced in the past.

In summary, the Corps has removed or caused to be removed 12 derelict vessels from the Miami River under our present authorities and stands ready to respond to any matter within the scope of our authorities.

MR. WHITE: Thank you very much, Mr. Gren.

Comments or questions?

MR. TRAINA: I would just like to say, Mr. Gren, sometimes we get such gloomy reports about things, it is good to see something has been done.

And as far as I am concerned, I would like to pass on my thanks to the Corps for getting the problem of the Miami channel taken care of. I am sure you will pursue that program of removing other ones as they are put in there.

MR. GREN: Yes, sir.

MR. TRAINA: Thank you, sir.

MR. WHITE: Well, I would like to say also that we very much appreciate the Corp's cooperation in this matter. We understand you might be doing a little additional work in there, and we hope that that will be speeded up also.

Are there any comments or questions?

MR. PATTON: Just a word of welcome to Mr. Gren to be aboard. He is replacing an excellent man, a long-time friend, and I am sure you will do a good job.

MR. GREN: Thank you, sir.

MR. TRAINA: The next speaker we have is Mr. Joseph Callahan who is with the Geological Survey in Washington

Mr. Callahan.

JOSEPH T. CALLAHAN

CHIEF, GROUND WATER BRANCH

U. S. GEOLOGICAL SURVEY

WASHINGTON, D. C.

MR. CALLAHAN: My name is Callahan. I am the Chief, Ground Water Branch, Water Resources Division, United States Geological Survey, a part of the Department of the Interior.

Mr. Chairman, conferees, ladies and gentlemen, in December 1969, the Secretary of the Interior directed the U.S. Geological Survey to take the lead in a research program to evaluate the effects of underground waste disposal on the

Nation's subsurface environment, with particular attention to groundwater supplies. The Survey has complied with the Secretary's directive and is engaged in an investigative program designed to ascertain the subsurface geologic and hydrologic factors that are critical to the successful injection and containment of wastes, and to interpret these facts for the guidance of those proposing or regulating such practices, in order that decisions may be made which will reflect adequate consideration of anticipated benefits in relation to money costs and environmental risks.

The injection of waste in the underground may result in complex interactions of earth structures, rock stresses, hydraulic gradients, and geochemical reactions. How the waste will move underground, whether it will be contained in the zone of injection, and what environmental effects the waste is capable of producing, still cannot be predicted with a high degree of accuracy. The wide variations in volume, character and concentrations of waste products preclude generalization of the criteria for safe underground waste disposal. A thorough study of the feasibility of deep well injection must be made for every region or locality until such time as the level of knowledge makes it possible to predict what will occur in the subsurface environment when waste is discharged. For much of the country the detailed subsurface information will be slow in coming without enormous expenditures of manpower and dollars.

The Geological Survey welcomes the opportunity to increase its cooperative efforts with local and State governments and other Federal agencies in the study of the subsurface and groundwater hydrology to help in the solution of problems of waste disposal in Dade County, Florida.

Thank you.

MR. WHITE: Thank you, Mr. Callahan.

I would like to ask a couple of questions.

What length of time do you think would be necessary to study the situation as it exists in south Dade County now before you could make a judgment as to whether or not this is a feasible and desirable method of disposal of treated waste effluent?

MR. CALLAHAN: I would guess something on the order of 3 to 5 years, depending upon the expenditure of money, the manpower that one could put on this kind of a problem. This involves deep drilling and testing of the subsurface environment. It requires tests involving pumping, tests involving emplacement of liquid, chemical tests to determine the interaction of the rock material with whatever waste is going to be placed in that environment. So it would require, I would guess, a minimum of 3 to 5 years before you begin to get a handle on this thing.

MR. WHITE: Well, now, as you might have missed when I was reading the recommendations that have been developed previously, we do have such a well which has recently begun operation within the last 2 months. Would this not be expedited if you could get in and cooperate with the concern operating the system?

MR. CALLAHAN: Very definitely. Anything that we can get into that is ongoing gives us lead time, gives us a jump on things.

MR. WHITE: Would that not cut this time down considerably?

MR. CALLAHAN: Not too much. Not significantly.

MR. WHITE: Mr. Callahan, are you concerned primarily with the structural aspects? I mean, if you know, for instance, in an area such as Florida which is underlined with the so-called boulder design which is a saline aquifer, are you concerned if you know that the integrity of this aquifer can be preserved --

(Trouble with the loud speaker system.)

Maybe we can overcome the noise. I will proceed.

What I really want to know is if you are sure that the integrity of the strata is such that the water could not come back up into the other zones where the drinking water is being obtained and what not. Are you concerned, then, with the integrity of the well itself? Is that your primary concern -- construction, the type of casts that are made to case the well, keep this water out of the other strata?

MR. CALLAHAN: There are two areas you might say. One is the earth itself, the integrity of the formation to contain. The other is this hole. When you construct a well, you disturb this environment. You make a hole through it. If that well is not constructed properly, then you allow an avenue for the waste that you put into the ground to move up along that same opening and contaminate overlying layers.

MR. WHITE: But if properly constructed. And are techniques available to construct wells where this possibility is minimized?

MR. CALLAHAN: That is correct. There are techniques for constructing the wells. But one must then monitor to be sure that the well truly is doing what it is supposed to do. In other words, you don't just depend on the well construction technology and then just use the well and walk off. You have got to watch it. You have got to monitor it. And you can do this. It is done.

MR. WHITE: Of course, this is a little disconcerting this statement, that it takes that long to determine whether or not this program could be used. Would the Geological

Survey be in a position to divert resources into a hurried up study of this particular area?

MR. CALLAHAN: Yes, the Geological Survey has already done this or begun this and have diverted people into studies that are aimed at the subsurface disposal.

MR. WHITE: In this area?

MR. CALLAHAN: Yes. We have some work in this area, that is correct, in Florida.

MR. TRAINA: Specifically, Mr. Callahan, have you been involved in the general waterworks project that this conference addressed itself to the last session or have you been involved in another area?

MR. CALLAHAN: I would rather have Mr. --

MR. TRAINA: Are there any of your local people here?

MR. CALLAHAN: Mr. Clyde Conover is in charge of our Florida works. He could give you specifics.

MR. WHITE: If Mr. Conover would be willing to come up, we would appreciate it.

CLYDE CONOVER

DISTRICT HYDROLOGIST

U. S. GEOLOGICAL SURVEY

TALLAHASSEE, FLORIDA

MR. CONOVER: My name is Clyde Conover. I am Chief of the Florida District of the Water Resources Division, U. S. Geological Survey. I did not have a prepared statement.

MR. WHITE: We understand.

MR. CONOVER: But if you have questions, I would be glad to answer them as much as possible as far as I am acquainted. We have Mr. Buchanan, Chief of our Subdistrict of Miami, here and Mr. Kaufman who has been involved in the earlier development, doing chemical research on subsurface disposal as part of our national research program.

I might elaborate a little bit here while I am talking. As Mr. Callahan mentioned, the Geological Survey has quite an interest in learning all we can about the physical aspects of subsurface waste disposal.

Now, we have a very small, modest national program. And we have a fair share of those funds coming into Florida partly because of the unique situation we have in Florida of having very permeable limestones at depths in the large part of Florida, particularly south Florida cavernous system that has been reported in oil well tests, oil wells that go through this zone. Some of the zone has generally been

Clyde Conover

referred to very loosely as the boulder zone, the boulder zone getting its name partly from the limestone cobbles that bother the drillers in going through it. They call them boulders and so forth.

Now the amount of information that is definitely available to this zone is very meager. The oil well people consider it as something to try to get through and bothersome. They have no interest, really, in getting information on it.

We do have a large number of laws and so forth. Mr. Vernon, the State Geologist, has developed some fields in this zone. So what we need to do is capitalize on any opportunity that comes about by virtue of various proposals to work with them and see if we can learn as much as we can.

The subsurface zone is a little different as far as ability to develop knowledge than the freshwater zone. In the freshwater zone, obviously, there are a lot of wells that have been drilled for water supply over the many years. And by virtue of all of these, we develop our knowledge.

In the subsurface zone, as I mentioned, there has been no incentive in the past to learn about this zone. It has been basically nonpotable water. There has been no interest in looking into this as a resource or potential use in any manner. As I mentioned, the oil people consider it as something to get through. The amount of information is meager, and there are a number of wells that have been drilled. And we have some information.

There is an active subsurface disposal industrial waste well in the Pensacola area that we have been working on with the industry for about 6 months now. We have a report showing the results of that injection.

We have a little information on the well near Belle Glade which is another industry.

There is the well you mentioned, I believe utilities, near Coral Gables that has been drilled and is a subsurface injection of secondary treated sewage. We have not had an active participation in this well.

Information we have developed is generally informal. We have been working with the utilities a little bit to see if we can get some operating experience in the records—but very little, we learned today, because presently, as I understand, they are not injecting sewage.

The drouth came along. As I understand, they were requested to put just-treated sewage in the channel. So this is not an active well right now.

MR. PATTON: Excuse me, Mr. Conover. We heard some comment yesterday at the Board hearing on this matter. If I recall, Mr. Reynolds stated that they had a very short history of operation, but they were in the process now of going back to inject the treated waste into the well, if I recall. Mr. Reynolds, I believe, is here, and he can comment on this later.

MR. WHITE: Yes, I believe so.

MR. CONOVER: Yes. I would hope when they get back into it, they will be able to get some information.

MR. PATTON: I believe they are back now.

MR.CONOVER: Yes, but it would be strictly a more or less informal, whatever we can work out.

MR. WHITE: Mr. Levin, you indicated you had a question.

MR. LEVIN: Mr. Chairman, I would like to ask Mr. Conover a question, I hope a fair question.

Have you had a chance to look at this supplement to the Metropolitan Dade County Master Plan?

MR. CONOVER: No, I haven't looked at it. I have just a general idea.

MR. LEVIN: As I understand it, a portion of this plan recommends deep well discharge. This is the plan that has been presented for approval. What is the position of your Department with respect to this sort of thing? Since apparently from what I just heard there are no figures that can be given to anyone that this is apparently a perfectly safe procedure, what position is the Department in with regard to that?

MR. CONOVER: I don't know whether we have a position per se. Like I mentioned, we would like to and need to take opportunity at every place we can to evaluate the subsurface system.

Now, the only way we can evaluate some of these things is to really work with the people who have the problem.

Now, it takes, as Mr. Callahan mentioned, a number of test holes and actual test injection, etc., and full-scale evaluation. We can't really understand this system by not injecting fluids. We have to do some sort of injection tests to understand it. So I think the thing is to look at it and see if the subsurface injection on a test basis, research basis, or interim basis to find out the facts of the matter, I would think would be worth it.

As I understand it, what we are talking about is injection of secondary treated sewage at whatever level anybody wants. So this would take whatever character sewage is available there and would reach all the criteria and use this as a mechanism to inject.

MR. LEVIN: How long would that take?

MR. CONOVER: I think it would take, a good evaluation, a minimum of 3 years. But if it could be tied in to an experimental subsurface injection, you might say, in effect, you have at least temporarily maybe been utilizing a system to dispose of sewage.

Now, the amount of sewage, as I understand it, is not too great in the initial stages here. If it were determined that such were not good or for some reason it would not receive wastes or the waste would be moved to some area that would be detrimental, then the practice could be stopped.

On the other side, it would show at the end of the initial period here, it seemed to me basically O.K., then it would be a question for consideration for further steps to be made.

I don't think you could make a decision that it is good or bad right now without having some tests.

MR. WHITE: Maybe this is unfair, but do you think you have enough information and are you in a position to make judgments that this would have a reasonable degree or possibility of success?

MR. CONOVER: I think as a general judgment on, knowing the geological situation and hydrological situation, considering the geochemistry involved, it is a reasonable judgment, it would have a degree of success.

Now, the exact amounts of water that could be injected, exactly where they would go, etc., would have to be looked at. But we are talking about the boulder zone, around 3,000 or 4,000 feet. It presently contains sea water. The temperature of the water is such that it would lead you to believe that it is connected to the ocean to some degree many miles out. It may be in the Gulf Stream, etc. There wouldn't seem to be much tendency for the water to be moving upstairs unless the well constructions were very poor.

I think as Mr. Callahan mentioned, it is quite important that the construction of the well be tailored very closely to the geological conditions encountered during drilling and that this would start right from the well specifications, running down, running the test hole down, geophysical laws, etc.

MR. PATTON: Mr. Conover, I think you recall some of the associations that we have had with you and Dr. Vernon. I would like for you to comment on the procedure that has been used in the past. And I will number these wells to caution you -- I guess caution is about as good a word as any -- that we have put on this procedure. Could you comment on this, that you suggest any further improvements in this?

MR. CONOVER: Well, in general, I believe the thing has been your department and others that have adequate records. We will first start clear back that the well be adequately constructed to fit the geological environment, then there be adequate records of the character and quantity of waste injected, there be adequate monitoring. In simple situations, a monitor hole right near the well or in the well, at least two monitor wells in the receiving zone. And in certain situations, they would have to be modified.

In this particular one down in this locality, I think it would be well, certainly, to consider monitor holes also in the upper zone above this boulder zone.

Now, there are permeable zones above the boulder zone starting around 900 feet on down. And some of these zones have a better quality of water by quite a bit than the boulder zone. So I think we would need some monitor hole in some of the boulder zone as well as to make sure that wastes don't appear.

MR. LEVIN: Mr. Chairman, Mr. Conover, there were several people yesterday that spoke. And as I understand the problems that they are confronted with, what they were fearful of is that if this well were sunk to a sufficient depth, apparently a passage through a drinking water area into another area that is not consisting of drinking water, the possibility of this backing up exists in the future and that perhaps it may contaminate that particular area that is now being used as a source of drinking water.

My question to you is: Is there any way that we could calm these fears by your taking a look at this thing and giving us your opinion as to the probability or possibility of that happening, based on engineering surveys that have been presented to us in this plan.

MR. CONOVER: Well, yes, we do have a plan there. I suspect without looking at the plan, it is a general plan which would have to approve detail down to fit the local situation. And based upon test hole information such as drilling, that would dictate the actual construction. So I think if it were adequately done along these lines, I think there is fairly good assurance that the well itself should be fairly tight in construction.

MR. LEVIN: You said you are based here in Miami?

MR. CONOVER: No, I am Tallahassee. Like I said, we have Mr. Buchanan in charge of our office in Miami here.

MR. LEVIN: From what I understand, we were informed yesterday that Dade County plans on having a meeting with the other municipalities. From what I understand, there will be a meeting on the 12th of July in the afternoon wherein an attempt to arrive at an agreement on the master plan for Dade County is going to take place. And I was wondering if perhaps someone from your Department could be made available with these gentlemen in order to try to get as much information as we possibly can. And either we ought to be told that this is not the way to proceed or is the way to proceed. And in that way, we would have some intelligent information as to what we could base our decision on.

Could you possibly do that?

MR. CONOVER: Yes, we would be pleased to have someone there.

MR. LEVIN: Thank you very much.

MR. PATTON: Mr. Chairman, one further part of what you just said is that if this is a way to proceed, try to prescribe some of the cautions in addition to those that our department has already set or possibly reinforce them -- the fact we are not just looking at a hole in the ground, out of sight, out of mind concept; that this has to be done very carefully.

MR. CONOVER: Right.

MR. TRAINA: Clyde, does the Geological Survey have the resource? Can you commit the resource to monitor a well? If you can't, what is it going to take on the part of these conferees to help you get them?

MR. CONOVER: Well, the resources we were thinking about on our side would be manpower. The facilities, we would figure that whoever is operating this would have to furnish those such as the wells, etc. We would be furnishing primarily the manpower and helping on the evaluation of it.

MR. TRAINA: Are you in a position now of committing that manpower?

MR. CONOVER: Yes.

MR. TRAINA: Great.

MR. PATTON: Mr. Chairman, one further question. In connection with the Recommendation and Conclusion #8, I just wanted to ask Mr. Conover if he had been approached by anyone to assist in this monitoring of the general waterworks well.

MR. CONOVER: Not formally, I don't believe we have had any.

MR. PATTON: Informally?

MR. CONOVER: Yes.

MR. WHITE: I might comment on that. As you know, the Conclusions and Recommendations have no status in law until they are formally adopted by Mr. Ruckelshaus. These were not formally adopted until, I believe, the 26th.

MR. PATTON: Twenty-eight.

MR. WHITE: I think in the future we are certainly hopeful we won't have to wait this long on such adoption and things will move smoother. But with respect to any action taken to request people to formally do something outside of, say, Environmental Protection Agency, we don't send them out until we do get this summary out. And I will be receiving an official copy of the summary next week, Mr. Conover.

I would like two things. I heard some testimony yesterday at the meeting. Apparently this is a low-head well that they have here. It doesn't take much pressure to put the waste into the zone if it is going to. Under this circumstance, the likelihood and probability of any foulup in the operation of the well is diminished, is this not correct?

MR. CONOVER: Yes. I think so. It is a fairly highly permeable zone. I believe the initial test figures on the Pensacola utility well are on the rough order of 4,000 gallons a minute with 4- to 5-foot head, something like, injection pressure. It is a very low pressure. The potential in this area here of the injection pressures building up so large to rupture would seem to be very rare and remote.

Now, I might mention in the Pensacola area the injection pressures are quite a number of feet. I don't remember exactly. I have a copy of the report here. But it is high. It is a very low permeable zone. And there, of course, we need to continue to look at that thing from that point of view of actual movement of the water upward from highly increased pressure.

But this area here would not have it.

MR. WHITE: Let me ask you this: Would it be appropriate and do you think the Geological Survey would go along with something of this nature -- would it be appropriate to go ahead with a well that is potentially being designed to handle this treated waste effluent in Dade County? Would the Geological Survey participate in the development? And would this be a way to approach it?

I mean, just by going with this well and making this a pilot study.

MR. CONOVER: I would think it is worthy of consideration from a pilot study. From this, you could make decisions whether to go further or back off or what.

MR. WHITE: Thank you very much, Mr. Conover and Mr. Callahan. We very much appreciate your participation.

MR. TRAINA: I have no other indication of any Federal Agency speakers. Is there any? None has been listed that want to speak.

(No response.)

With that, the Federal presentation is over.

MR. WHITE: Thank you, Mr. Traina

Let's take a short break until 11:15.

(Whereupon, a recess was taken.)

MR. WHITE: Let's get back in session, please.

I believe we have the sound system repaired now.

Hopefully, we won't have any more interruptions.

Also, I would like to ask any of you who are coming forward to make a statement, please clearly identify yourselves for the reporter and for the record.

Also, before we go to the State's presentation, based on the short conversation I had with Mr. Callahan during the break, I would like to ask him to come back to make an additional statement. I think it will help clarify some things and will help build a record for the conferees.

Go ahead, Mr. Callahan, if you would, just on the basis of our discussion. That would be most helpful.

MR. CALLAHAN: During the break, we had a conversation, and I wanted to amplify or explain to Mr. White on the matter of timing. He had asked how much time would it take.

My answer was if you want a positive answer, somewhere in the vicinity of 3 to 5 years. And there is a reasonable area here.

We have in existence a well, at least one well, for the disposal of treated waste, treated sewage. Treated sewage, municipal sewage, is one of the less bothersome of the wastes generated by men. It is something that in a sense gets corrected if you dump it in a stream. So the geological situation here in the Miami area is such that if you disposed of this material in the boulder zone beginning now, this would be part of an experiment. You could put down monitor wells and measure what is happening and have this ongoing investigation so that it would give you leadtime in determining what would happen in this flow system.

Now, you are going to put it in the boulder zone at a depth between 3,000 and 4,000 feet below land surface. The municipal water supplies come from a shallow aquifer whose bottom is roughly 100 feet below land surface. Between the bottom of the municipal supply source and the top of this salt water bearing zone are other formations that contain waters that vary from something you could barely drink, perhaps through the brackish and range into salt water. There are great thicknesses of limestone marl some places that separate that lowest salt water zone from the upper municipal water zone if you want to call it that. So with adequate construction of wells, adequate monitoring of this thing, this to me personally is a better alternative -- personally, I say this -- than putting it in Biscayne Bay or even putting it in the sea.

Now, all I am trying to do is put this thing in proper perspective, the alternatives for disposing of your wastes. We can't put them in containers and hold them. We have got to do something with these wastes. And we don't follow the Oriental system of carrying them out to the vegetable fields and fertilizing our next source of food supply. So we have got to do something else with them.

MR. WHITE: Thank you, Mr. Callahan.

Are there comments?

Mr. Levin.

MR. LEVIN: Mr. Chairman, Mr. Callahan, let me ask you this: Do I understand what you are saying is that these tests have been licensed to be tests, but nobody likes to be a guinea pig? What I am trying to find out is can these tests be made with complete safety to the people of Dade County.

As I see it, we are happy to have the information provided that there is no danger to any of the residents by doing this sort of thing. And I gather by what you are saying there will be complete safety in this.

MR. CALLAHAN: I can't think of any reason that would endanger the people of Dade County much less than throwing it in the canal.

MR. WHITE: Any other comments?

(No response.)

Thank you, Mr. Callahan. We appreciate your coming back for this.

And now we will call on Mr. Levin for the State of Florida's presentation.

MR. LEVIN: The first speaker will be Mr. R. B.

Steytler, the Director of the Dade County Water and Sewer System of Miami, Florida.

ROBERT B. STEYTLER

DIRECTOR, DADE COUNTY WATER AND SEWER AUTHORITY

MR. STEYTLER: My name is Robert Steytler. I am the Director of Dade County Water and Sewer Authority. My presentation this morning is in two parts.

The first part is a progress report that we wish to make to the conferees from Dade County at this time.

Much progress has been made in Dade County since the February 18 and 19 meeting of the conferees. An amended supplement to the Metropolitan Dade County 1961 Master Plan for Sanitary Sewerage has been prepared and forwarded to both the State and Federal agencies for approval. With State and Federal help this plan can be financed by the county. The plan will resolve certain conclusions and recommendations of the conferees as follows:

Conclusion and Recommendation No. 5 - The plan does contemplate the economic cessation of all waste discharge into the inland canals.

Conclusion and Recommendation No. 6 - The plan does contemplate 90 percent removals and year-round chlorination of effluents discharged to the ocean.

Conclusion and Recommendation No. 8 - The plan does contemplate the removal of all discharges to Lower Biscayne Bay and canals that drain to Everglades National Park.

Having formulated the plan, we have attempted to evaluate design and construction time. These schedules have also been forwarded for your approval.

It is apparent that the dates, as set forth in earlier conclusions and recommendations of the conferees, will not be met. We do intend to follow the time schedules set as closely as possible and divert flow from the inland canals as soon as we can complete the necessary interceptors. We also intend to begin design on our treatment plants as soon as our plan is approved and to diligently pursue the work to its earliest completion. We respectfully request that the completion dates set by the conferees be adjusted to reflect the time as set forth in our schedules or as may be revised by the conferees.

In connection with the Conclusion and Recommendation No. 4 relating to the preparation of the Master Plan, I am happy to report we have, in the last week, received and accepted the Federal grant offer and are at work on this project. Again the county faces a time problem. Conclusion and Recommendation No. 4 calls for a completion date of November 1, 1971, for the first part of this document. We feel that, because of the versatility and objectiveness of the interim plan, that plan, if diligently pursued, will use all of the talents and resources of the county in the next few years in moving the county as rapidly as possible towards our joint objectives. The Master Plan is as important now as it was in October; however, at this date the program is not being held up because of it. We, therefore, request that the November 1 deadline date be extended to allow sufficient time to produce a master plan that will be more meaningful in charting the future course of the county in water matters.

On February 19 the Conclusion and Recommendation No. 8 was modified to include studies by the county as to the feasibility of a recharge system and studies by the city of Homestead concerning deep well injection. Since that time our studies indicate an economy in treating the Homestead area wastewaters at the regional plant in the Goulds-Perrine area. We then assume that the county should pursue both studies in Conclusion and Recommendation No. 8.

We have met with the State and Federal officials involved in the geology of this area and intend to enter into a joint agreement with those people to properly evaluate and monitor the deep well disposal system proposed.

We have talked to Mr. Conover quite at length, and there is a program which he has set up which is agreeable to the county for this work.

We have made tentative inquiries into receiving a grant for recharge studies. We feel encouraged that a grant will be made in this area for this type of study. Many details must be worked out, and it is possible that some other agency may receive the grant. Regardless, we feel strongly that wastewaters must be reclaimed at some point in time and we will be involved in any program to determine the feasibility of the various methods available.

That concludes the progress report. We have submitted a plan, the updated version of the 1961 Master Plan. I would like to read a paper on it. It is repeated from yesterday, but I prefer to read it again today.

MR. WHITE: Fine.

MR. STEYTLER: There has been much confusion about the interim plan. It must be clearly understood that the plan presented is not the master plan to answer the many sewerage problems of Dade County. Such a plan is now being prepared and will be available at a later date.

The plan presented is, however, a necessary piece of work in order to allow the municipalities and private utilities in the county to comply with the various local, State and Federal regulations relating to sewage treatment.

Because of the regional plant concept coupled with the Federal and State grants available to the county, it offers the affected utilities the fastest and most economically feasible method of providing the required degree and methods of treatment while still being versatile enough to be adjusted to comply with any proposed master plan.

Many of the utilities in the county have been cited for not complying with present standards. Most of the other operations have been given deadline dates, none later than January 1974, to make major additions to their plants. It is a fact that the building of two regional plants and expanding the Virginia Key plant will result in a lower treatment charge to the residents of Dade County than would the individual updating of the more than 80 small plants.

The objective of the interim plan then is to provide an immediate solution of existing problems in a manner which will be predictably consistent with a completed Master Plan and, most importantly, to help the existing utility systems in the county to meet standards recently imposed upon them by others. This interim plan is presented as such.

Our assessment of the proposed work necessary to meet those needs that have already been clearly identified comprise about 10 percent of the work that will be involved in the Master Plan. This interim plan is limited to only those facilities necessary to allow the existing utilities to meet the standards already set. It is versatile in that the diversion line from the West Dade area and the South Dade plant location, along with other elements of the plan, will give us the needed flexibility to adapt to reuse of the water which may be in the form of diversion of treated wastewater for irrigation or for recycling reclaimed waters to the canals, into the ground or to the water conservation areas. Further studies and research are necessary to define the safest and most economic method of reuse.

A proposed schedule of charges has been presented to the utilities involved. The connection charges work out to be about 50 percent of the new investment by individual utilities if they were to update their existing plants to meet the regulations. The monthly charges are considerably less than the utilities charges would be; however, in all fairness, the utilities must recoup, in their rates, the investment they have made in plant facilities that will be abandoned under the county plan. Costs will increase regardless of who builds the facilities. It is our feeling that the immediate cost increase will be less if the county builds the plants. In addition the future costs and service charges, under county operation, will be even more favorable to the consumer.

Concerning the North Dade proposal of the plan, the county proposes to make approximately $10 million of extensions to the North Dade interceptor system and to build a $50 million, 85 MGD plant with ocean outfall at the Interama Site. There are 18 plants whose discharge will receive approved treatment at this regional plant.

Because of salt content, a portion of this flow cannot be considered suitable for recharge water. A major fraction of the flow in the western reaches of the system can be diverted and treated for future recharge. The projected population increases in the salt infiltration areas will eventually use the initial plant capacity. The plant itself, because of location and land commitments, will be a showplace, in that it will be designed as a prototype of the best which can be done esthetically as well as technically.

The question of what Miami Beach will do with its sewage is important to the county at this time. The county has no wish to coerce a decision to divert wastes to a regional, county-operated plant. However, design of the plant cannot be started without firm predictions of initial and eventual design flows; and, therefore, the county must respectfully insist that Miami Beach commit itself, conclusively and with finality, whether or not they will be connected to the county plant. We need to know at the earliest possible date, -eferably now.

We have made cost calculations and presented them to Miami Beach. As expected, our studies tend to confirm that we can treat sewage at the large regional plant for about 20 percent less than the Miami Beach projected treatment costs. However, because Miami Beach will have to abandon its outfall and pay certain costs of a transmission main to the county plant, the saving is offset by these other related costs. In other words, the total costs, on an annual basis, to Miami Beach will be about the same regardless of whether the Beach waste is treated in a county regional system or in a local plant. The immediate investment under the county plan is less than the city would invest in their own plant. Because of the increasing scale economies inherent in the larger plant at Interama, there will be a slight savings in monthly costs to the users of the county system if Miami Beach chooses to have their sewage treated at the county plant.

All of the above calculations are predicated on Miami Beach receiving State and Federal aid in their construction costs. Should either the State or Federal agencies rule that a separate Miami Beach plant does not meet the requirements of the regional systems concept; and should Miami Beach fail to qualify for a construction grant, then the costs to Miami Beach will be drastically higher.

Concerning the Central Dade system, it is proposed to collect about 7 MGD of sewage from the 16 small plants involved and transmit it to the City of Miami system for treatment at Virginia Key.

The county again has no wish to force the city of Miami to accept outside sewage; however, discussions with the city's Department of Water and Sewers indicate the City will accept the flow.

In order to meet State standards the city must expand their plant capacity and also provide improved treatment. In our planning to date, we have assumed that the plant expansion soon to be made will be sufficient for the future as well as the presently unconnected City of Miami population, and it follows then that unused capacity will be available for the first few years. The county intends to use that capacity but has designed their transmission system so that the westward portion of the area can be diverted southward or westward.

This diversion is planned for two purposes. The first being to allow the county versatility if the city's plant cannot be expanded; and secondly to allow for the option of future recycling a major fraction of flow that is not contaminated by salt water infiltration. It is conceivable that, as population increases and recycling has been proven, a fourth regional plant may be built in the West Dade area for recycling wastewaters.

Concerning South Dade, this facility is planned to pick up approximately 11 MGD of sewage from 9 plants in the area.

There is a considerable misunderstanding concerning the effluent disposal from the plant. A drawing with the plan shows an ocean outfall only because this is the only method of disposal that is allowed under the various policies of the Federal and State agencies. The text of the plan explains in detail that this outfall should not be built unless a study of all alternate methods shows that the outfall is in fact the only practical means of disposal. On page 41, after discussing certain alternates that should be studied, the report states, "For these reasons, it is felt that construction of an outfall should be deferred for the present." Further on page 42, after discussing the deep-well disposal method the report states, "In any event the stand-by deep-well injection system would be functional and serve a very useful purpose without precluding the construction of an outfall system or a hasty commitment to invest in a disposal facility which a detailed systems analysis may reveal to be not the preferred solution."

There are certain concerns and reservations on the deep-well disposal system. On a pure geological basis the cost estimates include sufficient funds to properly monitor the operation of a deep-injection well system. Also, a joint arrangement is being worked out between the county and the State and the Federal agencies involved to cooperate in a monitoring program that will insure against harm from any system failure.

There is a strong feeling that this wastewater should be recycled. We agree that eventually this should be done. However, there are many factors to consider prior to recycling. These factors include but are not limited to the degree of treatment required, the effect to the canals if they are used as the receiving conduit for indirect recharge purposes, the effects of irrigation by reclaimed wastewater, the effect on the vegetation of the Everglades or on the conservation areas if reclaimed wastewater is stored, and the effect of water quality in the Biscayne aquifer if it were recharged with reclaimed wastewater--directly, indirectly, or both.

Dade County has many inherent differences from other parts of the world where wastewater is recycled such as a flat terrain that does not allow free flow in the canals, the drinking water aquifer is the highly permeable surface formation, the climate of the area and other environmental factors are such that a small increment of nutrients and other sewage-related materials may cause an explosive effect on growth of both plant life and microorganisms.

In answer to these questions the county has been instructed by the State and Federal conferees, and does intend, to seek or advocate a Federal grant to determine the best method of recycling their wastewater. With seasonal changes and the public health importance of this study, it must extend over at least one year and more probably longer.

The deep wells, then, are the method of disposing of some 11 MGD of effluent that, at present, does not meet State and Federal standards. In addition the recycling studies will proceed more rapidly if the total of 11 MGD is available for study. It is important at this time to make one further point and that is that it is impossible for a mechanically operated plant using the principles of a biological treatment to operate at full efficiency 100 percent of the time. If this water is to be recycled to human use, then it is imperative to have deep wells or some other "fail safe" disposal. The deep wells are the most economical in sight at this time.

The city of Homestead has raised a number of questions about the plan. We have conferred with their officials. We again state the conviction that under our rates and charges the residents of that city will pay less under the county plan than they would if the city were to expand their plant to meet State and Federal requirements. Should State and

Federal aid not be available to Homestead, then the difference would be even greater. We cannot, at this time, envision a situation in which this would not be axiomatic throughout the county.

In conclusion let me state again that almost all of the sewage treatment facilities in Dade County are under some State or Federal regulation to make major improvements to their plants. The plan proposed, with State and Federal aid, is, in our opinion, the most practical and economically feasible method of helping these utilities to do the job required.

I had some comments on some earlier discussion this morning. Might I make those at this time?

MR. WHITE: Yes, please proceed.

MR. STEYTLER: Of course, the first question is that the recommendations of having these various facilities built by a certain date are fine recommendations. However, physically, we do not feel that we can do these.

Secondly, we have a problem which we respectfully request the conferees look into in the tying in to our transmission system of various plants prior to completing the secondary treatment on the ocean outfall. We have some physical problems of making those tie in and keeping those plants in operation. And these are comments for your consideration.

MR. WHITE: Thank you, Mr. Steytler.

I, to keep the record straight, would like to ask that you submit a copy of the interim plan officially to us at this time. We have one in our possession, but I would like to make it a part of the record. And this will be a part of the official record kept in Washington. We will not reproduce it in the transcript.

(The above-mentioned interim plan, marked Exhibit 2, is on file at HQ, EPA, Washington, D.C. and Region IV, Atlanta, Georgia.)

Are there comments or questions?

MR. PATTON: Mr. Chairman, I would like to ask also that in connection with the introduction of a copy of the outline of the plan, that Mr. Steytler also furnish a copy of the resolution by the County Commission indicating concurrence of their official county agency on this matter.

MR. STEYTLER: Certainly.

MR. WHITE: If you will do that, and that will appear in the complete record, in the printed transcript.

(The resolution follows.)

Agenda Item No. 7 (o) 8
May 18, 1971

RESOLUTION NO R-719-71

RESOLUTION APPROVING THE AMENDMENT TO "SUPPLEMENT TO THE DADE COUNTY 1961 MASTER PLAN FOR SANITARY SEWAGE"

WHEREAS, the Board of County Commissioners has approved, by Resolution Number R-281-71, a Supplement to Metropolitan Dade County 1961 Master Plan for Sanitary Sewerage dated January 15, 1971, and,

WHEREAS, since the date of that supplement the Board of County Commissioners has endorsed the regional concept of sewage treatment plants for the North and South Dade areas and,

WHEREAS, also since the date of the supplement, State and Federal Officials have issued orders and made requests that require changes in the supplement,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF DADE COUNTY, FLORIDA, that Resolution Number R-281-71 passed by the Board of County Commissioners on February 16, 1971, be amended to reflect that the Supplement to Metropolitan Dade County 1961 Master Plan for Sanitary Sewerage, dated January 15, 1971, prepared by Greeley and Hansen Connell Associates, Inc., Dade County's consulting engineers, has been amended as of May 10, 1971, and further that the amended document, a true copy of which is attached hereto and made a part hereof, is hereby approved; and the County Manager is hereby authorized to submit the Amended Supplement to Metropolitan Dade County 1961 Master Plan for Sanitary Sewage to the U. S. Environmental Protection Agency, through the State of Florida Department of Air and Water Pollution Control, to assure eligibility for Federal and State assistance in the County's Pollution abatement program.

The foregoing resolution was offered by Commissioner Earl J. Carroll, who moved its adoption. The motion was seconded by Commisioner Ben Shepard, and upon being put to a vote, the vote was as follows:

Earl J. Carroll	Aye
S. A. Dansyear	Aye
Mrs. Stanley Joyce Goldberg	Absent
Alexanders S. Gordon	Aye
R. Hardy Matheson	Aye
Harvey I. Reiseman	Aye
Ben Shepard	Aye
Stephen P. Clark	Aye

The presiding officer there upon declared the resolution duly passed and adopted this 18th day of May, 1971.

DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

E. B. LEATHERMAN, CLERK

BY: EDWARD D. PHELAN
Deputy Clerk

Approved by County Attorney as
for form and legal sufficiency ____________________

MEMORANDUM

Agenda Item No. 7 (c) 8

TO Honorable Mayor and Members
Board of County Commissioners

DATE May 13, 1971 78c

SUBJECT Resolution Amending
Interim Master Plan
for Sanitary Sewerage

FROM R. Ray Goode
County Manager

Recently, several major changes have occurred in the basic concepts involved in the various master plans for sanitary sewer service and treatment in Dade County. The most significant of these changes is due to, (1) The limitations of final disposal for sewage plant effluent as set forth by various State and Federal agencies, (2) The North Dade regional plant concept which envisions Miami Beach waste to be treated at a regional plant in the North Dade area, (3) The South Dade regional plant concept which envisions Homestead and Florida City's waste being treated at a regional plant in the South Dade area.

It is necessary to have an approved Master Plan on file with the Federal Environmental Protection Agency prior to receiving any Federal Grants under Public Law-84-660. It is the intent of the County to file for such grants to complete some $100,000,000 of sanitary sewerage additions in the next five years

The Commission has, by prior action, approved the updating of the 1961 Master Plan for sanitary sewerage; however, this will not be complete prior to November of this year whereas applications for Federal Grants are due this month. A supplement to update this Master Plan was completed on January 15, 1971, and submitted to both State and Federal Officials. Because of the changes discussed previously, which occurred after January 15, it is now necessary to amend the January 15 supplement.

The amended portion of the supplement is basically contained in the section entitled "Future Planning" and consists of cost estimates and drawings showing the proposed initial construction phase of the program. In addition to specifically detailing the North and South Dade County regional treatment plants and service areas, there is also sufficient detail and cost estimates to construct a county system that will allow all existing treatment plants, including those under State pollution citations, to be economically connected to an approved regional treatment plant.

Your approval of this interim Master Plan is necessary in order for the administrative staff to proceed in an orderly and efficient program to provide sanitary sewerage to the residents of Dade County and is also necessary prior to the County receiving any State or Federal Grants. It is respectfully requested that you review the amended supplement to the 1961 Master Plan and approve it by amending Resolution Number R-281-71 to include the additional information.

RRG:RBS:mcp

STATE OF FLORIDA)
) SS
COUNTY OF DADE)

I, E. B. LEATHERMAN, Clerk of the Circuit Court in and for Dade County, Florida, and Ex Officio Clerk of the Board of County Commissioners of said County, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of Resolution No. R-719-71, adopted by the said Board of County Commissioners at its meeting held on May 18, 19 71.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal on this 19th day of May, A. D. 19 71.

E. B. LEATHERMAN, Ex-Officio Clerk
Board of County Commissioners
Dade County, Florida

By ______________________
Deputy Clerk

SEAL

MR. PATTON: I would like to make one comment at this time. I am sure a couple of things Mr. Steytler brought up will be considered by the conferees when the conference is closed. My feeling would be that the conferees should look at the matter of possible extension of the deadline after the time has arrived when the conferees have had an opportunity to review the effort that has been made to meet these deadlines which were imposed. And speaking personally, I am always inclined to be more sympathetic if I can see evidence that the person has made an all-out effort and has done the very best that they can to meet the deadline. And if there is good reason why they can't, then I think this puts a little bit different light on it than if somebody just comes in and says, "We don't like it, we can't meet it," or something like that.

A good point, Mr. Steytler.

MR. WHITE: Mr. Traina.

MR. TRAINA: Yes, I would like to make a couple of comments and ask a question.

First, let me say when we first came down in October, I think part of the county information you have presented here represents a big step forward, frankly. I think the concepts of regionalization, you have incorporated in your interim plan. And, again, it is a general one. But

I think the concept is there, and I would like to say from my standpoint that I think conceptually this is a good plan.

I would like to ask a couple of questions.

First, I want to reiterate what Mr. Patton said. While I can feel for you and hear you, I really think we should stick with our initial agreed-upon dates. I think this is always a wise thing to do in proceedings of this type. And until such time as we arrive at that date, let's not make any prejudgments about extending that date.

MR. STEYTLER: I agree with you, and I had to ask the question, though.

MR. TRAINA: Right. I appreciate that. As I say, I feel for you.

I would like to ask now some specific questions regarding the interim plan. You indicated in your opening statement that the schedule of financing as well as the schedule had been submitted. Frankly, I don't see that in the documentation I have. The plan, as I have looked at it, does not indicate any kind of a schedule for completion of work nor a financing arrangement.

MR. STEYTLER: We will certainly get them. What we did was submit, I think, 50 copies of this, as I recall, through the State office to your office.

MR. TRAINA: You are not talking about the interim plan? This is a separate document.

MR. STEYTLER: Yes.

MR. TRAINA: O.K.

MR. PATTON: There were schedules submitted, Paul, with this. It wasn't actually attached as a part. It was attached to the supplement.

MR. TRAINA: I see. Let me ask you this: Will the 1974 dates be met for secondary treatment for Dade County?

MR. STEYTLER: No, sir. If you want me to get the schedule, I could run over them quickly to show you what we have gained in getting these.

MR. TRAINA: What is the outside date?

MR. STEYTLER: October of 1975 if we start today.

MR. PATTON: I think this is the thing.

MR. STEYTLER: Considering design time, approval time and construction time, as best our consultants can determine.

MR. TRAINA: When is your beginning date?

MR. STEYTLER: This is if we start today. However, we now have a 30-day delay.

MR. PATTON: May I comment, Mr. Chairman, on that?

MR. WHITE: Yes, Mr. Patton.

MR. PATTON: I think one thing that bears saying here was heard by the Board yesterday. And I think this was one reason. And I am not presuming to speak for the Board. Three of the members are here. And if they care to comment, they can do so.

But I think that you may have heard the conditions that were laid down by the Board yesterday. I think they felt there was a sense of urgency. I think they feel that Mr. Steytler and the other people involved have to be delayed. They cannot move forward on some of these things until certain decisions are made. And therefore, rightfully, I think they laid down some very strict conditions with times for things to be done to permit the design to start moving so that the final completion date is not delayed any longer than possible.

One additional comment: I think that this is something that we are going to have to look at at the State level along with you people. I think it bears on both the State and the Federal rules. And we are going to have to consider this before we get down to a point of final adoption under both rules.

MR. TRAINA: Let me say I think the structure of the plan is good. I am concerned about the dates, and I think what you say, Vince, we are going to have to look into this.

MR. STEYTLER: We have a number of problems with the dates. The actual physical, the drawing of the plans and the hammering of the nails and pouring the concrete, take this much time. And maybe this is just as well because I don't think the economy of Dade County can absorb $100 million of construction in the short time allotted us.

What we get into here is the cost. If everybody is busy and work comes out, the contractors bid this at something they know they can make a profit on rather than competitively. There are a lot of factors involved in the thing.

But my only excuse -- not an excuse -- my only statement to the conferees is that if we start drawing the plans today, we just cannot physically do this.

MR. TRAINA: Again, without being too redundant, I can appreciate that. I can appreciate the question of the economy and also the question of the ecology of the area and not being able to stand too long an extension or delay in this program.

I would like to ask another question, Mr. Steytler. And that is specifically regarding the plan that you will give us as part of the record. And that is the question of septic tanks. You recall the recommendations made by the first conference addressed themselves to this problem. I see nothing in the plan specifically that outlines the program for the progressive elimination of the septic tanks and hook-up of sewers.

MR. STEYTLER: No, there is nothing in the plan concerning the hook-ups of septic tanks. This is a matter of financing and matter of time. This will be in the master plan.

MR. TRAINA: The county will address itself to that specific problem?

MR. STEYTLER: Oh, yes, definitely.

MR. TRAINA: The plan that is going to be submitted in November of this year?

MR. STEYTLER: Yes, sir.

MR. TRAINA: The last question, and we have had a lot of discussion on this, and I guess maybe just for the record, in your interim plan -- and you have covered it a little bit more in your opening statements or your statements associated with that -- the question of reuse. I assume that again in your November report to us, you will get into the question a little more deeply than you have in this interim plan.

MR. STEYTLER: We will get into it a little more deeply. However, I don't think we can possibly make recommendations by November. As I said in my report, certainly these things have got to be tried over at least four seasons. And I am thinking in terms of a much longer period of studying the recharge, recycling or reuse of the water.

However, I am very reluctant, as I say, to supply it for drinking water until I am absolutely sure it is safe.

MR. TRAINA: I concur. The point is with regard to the November date, you will explore some alternatives available.

MR. STEYTLER: Certainly.

MR. TRAINA: I know it is too soon to come into any engineering proposal, but at least go into the alternatives that will be available for your system.

MR. STEYTLER: We will spell out a program in this area.

MR. WHITE: Then conceptually everything is in order, is this correct?

MR. STEYTLER: Yes.

MR. TRAINA: Mr. Chairman, I think that covers the points I wanted to make.

MR. WHITE: Mr. Patton.

MR. PATTON: I would like to express my thanks to Mr. Steytler. I think he has brought a new sense of urgency to this problem. I was a little bit dubious about his wisdom in stepping into the middle of this hornet's nest, but I guess that is about the best way you can try it. And I think he has done an excellent job in trying to move forward, realizing that there is an awful lot to do. Much of this has not been accomplished yet, but I think that I see a sense of urgency in moving forward which we have not seen this much of before.

MR. STEYTLER: Thank you.

MR. WHITE: Well, I think I will add my voice to Mr. Patton and Mr. Traina that I am sure the conferees are not disposed at this time to modify any dates. We will sit back and view the progress, Mr. Steytler.

Thank you very much.

MR. STEYTLER: Thank you.

MR. LEVIN: The next State speaker will be Mr. Peter Baljet, Director of the Dade County Pollution Control.

PETER P. BALJET

DIRECTOR

DADE COUNTY POLLUTION CONTROL

MR. BALJET: Mr. Chairman, members of the conference, my name is Peter Paul Baljet, and I am the Pollution Control Officer of Dade County. It is my function to protect the environment of Dade County. As you know, I started this job in October 1970, with the Federal-State Enforcement Conference meeting here for the first time to discuss water pollution problems in Dade County. We have immediately responded in dedicating ourselves to meeting the recommendations of the conferees. To bring you up to date on our efforts, I would like to report the following:

Peter P. Baljet

1. Continuing surveys of the waters in and adjacent to Dade County, Florida, disclosed that further degradation has come to a halt. In fact most of our waters have materially improved in quality.

With this in mind, I have brought with me one chart indicating one canal on which we have drawn three sets of data pertaining to dissolved oxygen, BOD, and suspended solids. If I may, I will reveal that to you now.

(Chart.)

The blue line represents data for 1971. All these lines represent averages for the years. In this respect, the blue line would represent averages for approximately 5 months in 1971.

As you see, the black line is the line for 1969. And looking at the dissolved oxygen content in Snapper Creek Canal, we find that in 1969, it was for most of the time below 1 ppm. For 1970, it is already increased. And in 1971, an average of 3 ppm can be arrived at.

For BOD in general, these levels have remained the same. But I would indicate a slight decrease for these first 5 months. Of course, you have to realize that the drought conditions didn't help out in establishing a lower BOD in our canal.

The most drastic change has occurred in the coliform contents or coliform tests in Snapper Creek. And the levels are now approximately below that which we would feel is acceptable for swimming.

The peaks that you see in all these three graphs are situated at the effluent point of the principal utility sewage treatment plant.

2. We feel that better quality of Dade County's waters reflects the positive manner in which Dade County Pollution Control has undertaken the abatement of its pollution problems. For example, paragraph 10 of the February 18-19 Federal-State Enforcement Conference disclosed that some 13 wastewater treatment plants should be cited based on a joint Federal-State county inventory that was completed at that time. Most all of these wastewater treatment plants in question now provide 90 percent treatment efficiency and better. In this regard, the following data are presented for each plant in the order of listing as stipulated in the February 18-19 Conclusions and Recommendations of the enforcement conferees:

Riverdale Estates: Reported efficiencies are 94 percent BOD removal and 91 percent suspended solids removal for the month of April.

I will be very frank with you at this time to tell you that the efficiencies for these months or at least the month of May have been below 90 percent.

Andover Subdivision: The Zurn microstrainer is out of operation due to failure of the fabric. Letters have been written to the manufacturer by our office and by the utility company requesting that repair of the device be initiated. The secondary treatment process has recently improved in efficiency following a reduction in mixed liquor-suspended solids. Also, this plant does not meet our 90 percent requirements.

Doral Country Club: Removals of BOD and suspended solids were 97 percent and 99 percent, respectively, for analyses run in early June. A change in operating staff has led to significant improvement at this particular treatment plant.

Miami Lake Utilities: This plant has suspended operations, and is now connected to the ocean outfall facilities.

Southern Estates Utilities: A recent change in operating staff has brought treatment efficiencies to over 90 percent for both BOD and suspended solids.

Leisure City: This treatment plant reported 89 percent removal of BOD and 82 percent removal of suspended solids for May. These data represent samples taken prior to open sand filters.

Peninsula Utilities: Although the deep disposal well is ready to accept effluent, the present drought condition has compelled local officials to require that the present canal discharge not be stopped. Reported efficiencies are consistently above 90 percent.

Carol City Utilities: Treatment efficiencies remain above 90 percent, with phasing out scheduled for completion later in the summer.

Community Utilities: Community Utilities is involved in prephaseout operations which include increasing the size of certain lift station pumps. Treatment efficiencies remain at or above 90 percent. This utility will be out of service by August.

Atomic Sewerage: The most recent report, submitted for the month of May, indicates that BOD and suspended solids removal efficiencies were in the 99 percentile.

South Miami Heights. Treatment efficiencies reported for May were 92 percent removal of BOD and 94 percent removal of suspended solids.

Li'l Abner's Trailer Park: A recent evaluation by the pollution control enforcement team indicates that this treatment facility is operating well, with removal efficiencies being above 90 percent.

Pan American Hospital: This treatment plant consistently produces an effluent containing 5 ppm suspended solids or less.

The degree of effort expanded by Dade County Pollution Control to pursue its objectives are further evidenced by our enforcement program. Full use is made of every legal and administrative tool available to us. During the period from October 1970, through April 1971, a total of 368 water pollution cases were processed. Action was taken and finalized on 239. Sixteen cases were referred for other enforcement action and 113 continued for pending court action. Along the administrative route our records indicate that some 131 notices were sent out describing the violation and ordering corrective action providing a deadline.

In further keeping with the objectives of strengthening enforcement tools available to reduce pollution in Dade County, proposed changes to the Pollution Control Ordinance have been drafted. Among the more significant of the proposed changes are the establishment of effluent standards, providing for the appointment of deputies to the Pollution Control Officer, providing for mandatory connections to approved sanitary sewer systems, and setting certain stages for voluntary sewage treatment plant expansions with respect to allowance of building permits within the affected service areas.

Peter P. Baljet

3. In general, the community of Dade County is cognizant of our pollution problems and has cooperated with Dade County Pollution Control in its abatement program.

Secretary of State Richard Stone, for example, has provided great leadership in the Miami River cleanup project. Much work still remains to be done, but the river is recovering Local Dade County agencies and other interested parties assumed the greatest burden in this endeavor in providing various base studies, surveys, and enforcement leading towards the identification and elimination of most polluters on that river. Dade County Pollution Control can now report that its continuing court battle against Miami Paper Board Mill will result in the elimination of this existing eyesore in the community. The industry will connect to the City of Miami sewers.

Without this community support we could indeed not have achieved the present state of improved conditions.

4. The county and its various departments have all actively participated in the formulation of the Dade County Master Plan for Sanitary Sewerage. From a professional point of view, there is nothing wrong with our Master Plan. The problem with the Master Plan is we have 27 municipalities in Dade County that cannot come to a unified line of action. Dade County will pursue every element in this planning process

from the initial conception of possible improvement plans through the construction stages and into the operation and maintenance stages.

5. With respect to the Master Plan, it is imperative that a line of action be established for the South Dade area. We recommend that a wastewater recycling demonstration project be initiated. This project could use existing facilities and should be monitored along sewage, bacteriologic, and virologic parameters. Disclosures from the subject project will serve as guidelines for master planning in this area. If these studies prove to be fruitful, we suggest that consideration be given to expanding the strategically located Dade County Perrine-Goulds sewage treatment plant. The effluent from this facility should be directed westward where it can be used for irrigation of agricultural lands and aquifer replenishment. We do not feel that deep-well disposal is an answer to the South Dade problem of sewage disposal. Prior to even considering this method of waste disposal, we suggest that the United States Geological Survey monitor the existing deep well at the Snapper Creek sewage treatment plant.

6. In answer to Recommendation 5 of the October 1970 Federal-State conferees' Conclusions and Recommendations, Dade County Pollution Control has prohibited any additional waste discharges into inland canal systems of Dade County.

Approximately five sewage treatment plant effluents have been removed from the inland canal system by the phasing out of their respective sewage treatment plant in connection to the North Dade ocean outfall system. All sewage treatment plant effluents will eventually be deleted as indicated on the proposed master plan.

7. In all reasonableness, Dade County has taken another look at the septic tank situation. A study will soon be initiated to examine the effects of septic tank effluents on the quality and quantity of our groundwaters. Meanwhile, Dade County Pollution Control will recommend to the Dade County Manager that the present deadline of July 1, 1971, concerning building permits for projects served by septic tanks, be held in full force excluding those lots which are now platted, and I might add, to which public water supply is available. Disclosures from our septic tank study,which should be available within 1 year, will provide us with necessary guidelines for new legislation in this area. It should be understood that all septic tank installations will be installed on an interim basis only. Abandonment of septic tank facilities is imperative when sewers become available.

8. Dade County also has considered enactment of a local ordinance regulating wastes from vessels used as domiciles or business establishments. Dade County Pollution

Control has recommended that enactment of such an ordinance be postponed based on forthcoming Federal legislation in this area. Federal legislation would preempt local ordinances.

9. Dade County Pollution Control has participated with a technical committee comprised of the Federal Water Quality Administration, the State of Florida, and other agencies in developing a regional water quality management plan for the conservation and reuse of the waters of Dade County. This committee has met once in April and we are awaiting further action.

I feel that Dade County has made great progress in the cleanup of its water pollution. At all times have we willingly expedited compliance with the recommendations of the Federal-State enforcement conferees. We appreciate your concern with our natural environment and the guidance that you have given us. This guidance has resulted in the established improvements.

Urgently needed, though, is additional advice from the conferees in the matters pertaining to South Dade. I can assure you that this guidance, coupled with Dade County's dedication to meeting the needs and aspirations of its people in providing for the material and economic requirements, while effectively preserving or enhancing its environmental elements, will result into an almost total restoration of our local waters.

I have mentioned Dade County Pollution Control many times, but it should be realized that when I speak about Dade County Pollution Control, I speak about Dade County as a whole. Dade County citizens are sponsoring a one-half million dollar local pollution program and if it was not for this support and the support of the County Manager, his staff, and the Board of County Commissioners, we would not be able to reveal to you this favorable report.

Mr. Chairman, if I may at this point, I would like to make a few comments on the findings of the study of the Federal Water Quality Control Administration, or rather EPA, at this time.

MR. WHITE: Please proceed.

MR. BALJET: Thank you.

I quote from page 11 of the subject report: "Municipal wastes are contaminating the bather of Dade County."

I would be the first one to require 100 percent treatment efficiency in Dade County. Even if we were to provide 99 percent treatment on all sewage treatment plants in the county, they still would be polluting our local waters. The only method to stop this pollution of our waters would, indeed, be to remove also its treatment plant effluents from these canals as the conferees have recommended.

Finding No. 2: "Twenty-one percent of the municipal waste volume from the county receives inadequate treatment and 77 percent receives no treatment." This indicates to me that only 2 percent of the county's waste receives proper treatment. And I do not agree with this. I have had 11 years experience in my present job as a sanitary engineer. And in looking throughout those that are here today, I realize that it is still less than the experience of most of the people that are participating in this conference.

However, I do feel that it is enough experience to indicate to you that 90 percent treatment is top-level treatment for secondary sewage treatment plants; that 85 to 90 percent treatment is good. It is not inadequate; it is good treatment.

In this respect, I also would like to mention, as I have indicated in my report to the conferees, that Dade County is going towards effluent standards. We can have a facility with an incoming BOD of 1,000 ppm and an outgoing BOD of 100 ppm which would indicate 90 percent treatment. But meanwhile, 100 ppm of BOD would enter the stream.

On the other hand, we have some treatment facilities in Dade County that have an incoming BOD of 20 and an outcome BOD of 5. This would indicate 75 percent treatment and be considered inadequate treatment. I would consider that

5 ppm BOD effluent is more than adequate.

Recommendation No. 3 indicates that "Small plants require disproportionately high labor and maintenance and in that respect are less efficient than larger conventional treatment plants." I agree. This has been well documented. But I would rather have the sewage treatment plants than a proliferation of septic tanks, realizing that we can't stop building and progress in Dade County as a whole.

Recommendation No. 4: "Closing Carol City, Myrtle Grove and Miami Lakes plants without providing alternative treatment will increase the overall waste discharge load." This is correct. However, it would also represent double cost to these facilities. If we are going this route at all, I recommend that these utilities donate or allocate their costs which they would have otherwise expended on secondary treatment to our ocean outfall systems so that we may see more expeditious implementation of secondary treatment at our ocean outfalls.

I do not object to Recommendations or findings 5, 6, 7 and 8. And I am in agreement with the Recommendations of this report, Mr. Chairman.

This concludes my remarks.

MR. WHITE: Thank you, Mr. Baljet.

Comments or questions if any.

MR. PATTON: Yes, sir.

MR. WHITE: Go ahead.

MR. PATTON: Mr. Baljet, I notice in your comments there that you brought out some of the points which to me spoke -- For example, in one case you talked about the effect of change in operating staff. And some of your other comments there, without going into detail on this, it would seem that this reinforces what many of us have said and known for a long time -- that you had to have a will to operate, and you have got to have qualified operators.

MR. BALJET: I agree, Mr. Patton.

MR. PATTON: One specific question here on the Andover Subdivision. You talked about the failure of this microstrainer. Was this installed under a bond?

MR. BALJET: It was not. And this, of course, is the problem.

Now, the utility has to pick up the tab for the improvement of this microstrainer. And I was advised that those monies are not available. With that in mind, we have contacted the Zurn Company and indicated to them that I would not allow any additional Zurn installations in Dade County before they have repaired the existing installation.

MR. PATTON: Have you notified my office in writing?

MR. BALJET: I do not think so.

MR. PATTON: I would appreciate if you would officially notify us in writing. I think we might reinforce your word there to this manufacturer if his equipment cannot be expected to perform. We will take steps to see that this type of failure does not occur. We will try to avoid giving it a chance to occur.

MR. BALJET: I will do so, Mr. Patton.

MR. PATTON: I think sometimes this word does get back to the manufacturer rather readily.

You mentioned the setting of certain stages for voluntary sewage treatment plant expansion on page 5 --

MR. BALJET: Yes.

MR. PATTON: -- with respect to allowance of building permit. Can you expand on what you mean by certain stages for voluntary sewage treatment plant expansion?

MR. BALJET: Yes, Mr. Patton. We have requested in the ordinance that when a sewage treatment plant reaches 80 percent of its capacity that at that time this facility shall submit plans to my office indicating a plant expansion.

Furthermore, if this utility reaches 90 percent of its design capacity that the expansion of the plant be implemented.

There are too many sad examples in the past where utilities have been allowed to reach their design capacity, not timely expanding to accept the additional loads onto it and, therefore, deleteriously affecting their sewage treatment capabilities.

MR. PATTON: Too little too late.

One further question here: What type of coordination is taking place between your office and that of Mr. Steytler and the official planning agency on these expansions with respect to what may be done on down the road on the master plan, realizing that we are in a time of, let's say, turbulence and chance, uncertainty?

MR. BALJET: We have, and intend to continue to be in full coordination with both offices and have input from all county agencies as well as the many utilities in this area.

MR. PATTON: I would make one further comment, Mr. Baljet. I notice on the last page of your statement about the guidance -- I think that what Mr. Thoman said in his statement today pointed out some of the directions there and possibly guidelines that I am sure Mr. Steytler heard with some clarity, I trust, as well as the planning people. And I would suggest that perhaps these comments be taken into consideration.

I believe that you heard the Board's actions yesterday in requesting Mr. Steytler meet with the various people within the next few days. And I would hope that you or some of your people will be present to participate and try to assist in this Board moving on this and as well as the rest of the plan, not just South Dade district alone.

MR. BALJET: We are most desirous to do so, Mr. Patton.

MR. PATTON: I think Mr. Steytler can use all the help he can get.

I have no other questions.

MR. WHITE: Mr. Levin.

MR. LEVIN: No, sir.

MR. WHITE: Mr. Traina.

MR. TRAINA: You heard the Federal report this morning, and I know you made some comments with regard to these small plants. We all agree that it is better to have small plants, I guess, than a septic tank. But a number of them have been found to not meet what is really the State requirement as far as 90 percent treatment. We are always going to have the problem with the small plants in the area. And I know it has taken a lot of your time and effort even to repor on the 13 here. I assume you feel that the ultimate solution to this question of small plants is regionalization.

MR. BALJET: Most certainly so, Mr. Traina. And every time that we approve a small plant in Dade County, it is with the proviso this plant be phased out as soon as general sewage facilities become available.

MR. TRAINA: I would just like again for the record, if you recall the last conference we had made a recommendation with regard to vessel pollution. Since then Federal guidelines have been proposed in the Register. As a matter of fact, we were here a month ago hearing testimony on those guildelines. And I suspect that within a short time that these guidelines will become rules and regulations enforced by EPA.

So just to comment on your deference of the county, I think this is wise for the guidelines of rules will be promulgated shortly. I would just hope that the county would enforce these. And I am sure they will.

MR. BALJET: Great. We certainly will enforce those. And I appreciate your comment.

MR. LEVIN: Mr. Chairman, I would appreciate an opportunity to ask just a couple questions.

MR. WHITE: Yes, Mr. Levin, please proceed.

MR. LEVIN: Mr. Baljet, I understood you to say at the very beginning that you thought this plan was a good plan. And then in your report, you said that you didn't think the deep well system was the appropriate system for South Dade. Is that right?

MR. BALJET: That's correct, Mr. Levin.

MR. LEVIN: Doesn't this plan call for deep well discharge in South Dade?

MR. BALJET: It hints at it, Mr. Levin. And I am not really against deep well injection. I would like to see an evaluation of such a facility first conducted by the USGS in Snapper Creek and the existing Snapper Creek plant before we go to allowing deep wells on a wide-scale basis in Dade County.

MR. LEVIN: Assuming this plan is adopted, it incorporates those items which you say you feel like now you do not recommend. How can we do this?

MR. BALJET: I think the plan is an interim plan. And we can adopt it as such, being fully aware of the fact that changes, of course, are still due. It represents in my thoughts a line of action on which we can proceed.

MR. LEVIN: Now, a second question. Yesterday I think it was the Mayor or the City Manager of Homestead -- I am not sure -- told us that being a country boy, he was opposed or couldn't understand why the plan called for pumping this sewage uphill for 13 miles. What can you tell me about that and as far as that being a part of the plan? Do you agree with him or do you think that he is in error in his position?

MR. BALJET: Thirteen miles is a long distance. It is not really uphill. The terrain there is really quite flat. I would suggest that, indeed, we give thought to the city of Homestead being a region in itself, if this proves to be fruitful at all.

If not, I strongly recommend they be included in the Dade County master facilities proposal rather than using the Perrine-Goulds facility.

We may arrive at another site more in between in which we then would utilize all the concepts that we are now looking for in this plan.

MR. LEVIN: So you think there is merit to what he said?

MR. BALJET: I think so, yes.

MR. LEVIN: Now, the third thing I wanted to ask you is you said that you had suggested that there be no local legislation on this vessel problem because there was Federal legislation being contemplated. What methods would you suggest as to the dealing with this problem immediately until the Federal Government has a chance to act on it legislativewise?

MR. TRAINA: Could I maybe clarify that point, Mr. Levin? The legislation has been passed. We are now issuing rules and regulations to meet that legislation. But the legislation is there.

We had a public hearing here a month ago. There has been an extension of time to receive more comments. But those regulations should be promulgated, I would suspect, within 30 to 60 days at the outside.

MR. LEVIN: And that should stop the problem with the houseboats and those things?

MR. TRAINA: It will establish regulations that have to be enforced. But the regulations and criteria will be established by the Federal Government.

MR. LEVIN: Who will do the enforcement?

MR. TRAINA: This is what I asked Mr. Baljet. It is the local prerogative here to enforce the regulations.

The problem we have had, if I might just regress a little bit, as you go from county to county, State to State, in the past criteria and regulations have varied. Recognizing this, the Congress charged EPA with establishing uniform rules applied countrywide, so that the guys heading out from Boston and ending up in Miami would meet the same regulations right on down. And this is where we are.

MR. LEVIN: Thank you very much.

Thank you, sir. Appreciate it.

MR. TRAINA: Mr. Baljet, I have a question on one specific comment you made with regard to the Federal report on item number 4 regarding closing of Carol City, Myrtle Grove and Miami Lakes plant. I didn't fully follow you in what you suggested the mode of action be there.

MR. BALJET: Mr. Traina, I can foresee, indeed, we embark on a policy of requiring these facilities to continue their secondary treatment efficiencies and at the same time connecting to the ocean outfall system. Foremost in my mind is that we should connect these utilities to the ocean outfall system based on the very fact that we have people that use these waters for recreation, swimming, fishing there. It is polluted and represents a health hazard. But in requiring their continuation of secondary treatment and in connection to the ocean outfall system, it represents a double cost to them.

I think that instead of that, if we are going that route, we not require that continuation of secondary treatment, but that we would take those monies that we would spend on the continuation of secondary treatment and that these monies instead be allocated to a construction of secondary treatment facilities at an ocean outfall system. In other words, to expedite the construction and implementation of an oceanography system.

MR.TRAINA: I can appreciate the financing problems there. But again, in terms of reducing pollution to the maximum extent which we are all trying to do, the Federal report recommended that these facilities, secondary facilities, continue to be operated even after connection to the ocean disposal system. And then at such time as the ocean disposal system receives secondary treatment that the individual secondary treatment plants be phased out.

Again, I can appreciate that could impose some financial hardships, but it does represent a maximum treatment which, of course, we are trying to achieve here.

MR. BALJET: Well, yes, I realize that. I am just looking towards a faster creation of an ocean outfall facility that has secondary treatment so that possibly the time lapse can be shortened to the point that we really would not have to be that worried about only providing primary treatment at the ocean outfall system.

MR. TRAINA: But you wouldn't object to continuing the operation on the secondary treatment plants even after hook-up to the ocean outfall?

MR. BALJET: From a pollution standpoint, this should be deferred. I do not object.

MR. WHITE: I would like to pursue the South Dade point just a little further, Mr. Baljet. You indicate you think a demonstration project should be initiated to consider recharge, recycling. In phasing this in, what do you think should be the immediate steps for the disposal of this treated waste effluent?

MR. BALJET: We could do two things, Mr. Chairman. We could either require that these facilities attain the highest degree of treatment and continue their discharge into those canals in South Dade or we could indeed go the route of an interim deep well disposal and that those facilities there be monitored by the USGS,inasmuch as I can see it is easier to install the necessary monitoring devices at the time of construction of a deep well.

MR. WHITE: In other words, you wouldn't be opposed to this approach if that appears to be a feasible alternative?

MR. BALJET: I would not.

MR. WHITE: One other question. Mr. Patton mentioned that when we were discussing the 15 major industries that discharge into the surface waters of the Miami River and possibly some canals, do you have all of those industries under local permits?

MR. BALJET: They are operating under the old State Board of Health permits.

MR. WHITE: I see. They have been in existence for some time?

MR. BALJET: Yes, of course. But right at this present time, we are in the process of requiring them to file for permits of operation, State permit program, which we are cooperating with.

MR. WHITE: I see. But you have not completed this phase of your repermitting or requiring --

MR. BALJET: We have not. There are just too many.

MR. WHITE: O.K. Thank you very much, Mr. Baljet.

Mr. Levin has indicated that he is going to have to leave early this afternoon. And I call on him now at this time for a statement if he would like.

MR. LEVIN: Mr. Chairman, I would like to ask permission to be permitted to leave and in my place, instead, I have talked to Mr. James Redford of our Board, and he has indicated he would be happy to sit in with your permission.

MR. WHITE: Fine. There would be no problem there.

And I think this would be a good time for us to break for lunch. And we will reconvene at 2 o'clock.

(Whereupon, at 12:45 p.m., the meeting recessed, to reconvene at 2 p.m. the same day.)

AFTERNOON SESSION

(2:10 p.m.)

MR. WHITE: Let's go back in session, please.

Since I did state earlier to some people who had asked that we were uncertain as to how we were going to go about developing our conclusions and recommendations, I think probably I should clarify this and tell you what we intend to do. We would like to go through the rest of the afternoon and hear from everyone who has indicated that they wish to make a presentation. Then we will adjourn. We will go into executive session late this evening or tonight sometime and hope we get our conclusions and recommendations in order and come back at 10 o'clock in the morning to make the presentation.

Also, I think we can get this room. I am not sure. I will make an announcement on that as we get further along.

Now, I guess we will call Mr. Redford to continue as far as the presentation.

MR. REDFORD: Has Mr. Sloan come back from lunch yet?

If you can find him, I will put the next man on.

Is Mr. Pearson of Homestead back from lunch?

MR. PEARSON: Yes, sir.

MR. REDFORD: If you would care to make your presentation.

O. R. PEARSON

CITY MANAGER

CITY OF HOMESTEAD, FLORIDA

MR. PEARSON: Mr. Chairman, conferees, I appreciate the opportunity of being here. Not having the staff that some of our bigger sister cities have, I had to write this out in longhand over breakfast this morning. It is current.

The city of Homestead, as you know, is located some 30 miles south of the City of Miami. We are located in a primarily farming area, but with a rapidly developing urban complex.

In compliance with the directives of the February meeting of the conferees, the city of Homestead has proceeded to institute studies and actions that will ultimately meet the requirements of the county, State and Federal regulatory agencies. The exception of a preliminary engineering report on wastewater collection, treatment facilities for the city of Homestead was accomplished in April of 1971. This report provides updated and adequate wastewater facilities for the city of Homestead as well as broad areas outside the corporate limits of the city of Homestead.

We have had the opportunity of giving only a cursory review to the proposal of Metropolitan Dade County Master Plan as amended. Due to the fact this report was only available to us over the past 5 days, two of which we have spent here, and due to the fact that we have not been able to meet with the representatives of Dade County to further evaluate the fiscal and developmental impact upon our area of the Dade County plan, we can only interpret what appears to be the conditions of that plan. From our preliminary review, it appears that the city of Homestead can meet its needs and those of our surrounding area at a cost less than apparently proposed by Dade County.

The city of Homestead is in a unique position in that it owns and operates its own electrical generating plant. We have investigated to a considerable degree the reuse of sewage effluents with generated cooling water to accomplish not only improved sewage treatment processes but also initiate freshwater conservation practices that will materially reduce the use of freshwater for generating cooling purposes. We feel that this program can be implemented, but what will be required is some research to determine just how this can be implemented.

In a preliminary sense, we have carried out discussions with various agencies. In one case, a Minneapolis firm is now working in this field. For example, they have developed a positive plan of thermal cooling coupled with sewage treatment. In one case they have a program that is adequate to handle generating capabilities of over a thousand megawatt electric generating plant in a population of one million persons which would require 110 acres of land to accomplish and process 100 MGD of sewage.

We have investigated to the best of our ability the question of deep well injection. The process is feasible from an engineering standpoint and is perhaps the least costly of any process of disposal. We feel the discharge into deep well may be a temporary expediency, but likewise feel the ultimate goal should be recycling with recharge into the Everglades and the Biscayne aquifer.

We have investigated the possibility of a series of polishing ponds similar to the construction now in operation in Santee, California. The system appears feasible. We have not yet had time to develop definitive fiscal information on this process.

We have submitted preliminary applications for Federal assistance in the correction of the Homestead sewage disposal problem. We have also reviewed advanced methods of treatment, third stage, if you will, because nobody seems to want to give us the definition of what tertiary treatment is. Or I don't know that anybody knows what it is. A third stage is about all I can obtain. We feel that there are advanced methods.

We have been in contact with local representives here, raw cobalt processes, that appear feasible to be coupled with our sewage treatment plant and electric generating plant which, if I understand it correctly, will make this water pure enough to process as a cooling water through our electric generating plant without any further treatment whatsoever.

We also feel that there are advanced stages of treatment that would make the effluent acceptable to any stream or lake that might be necessary to use.

I would add that Homestead has been in contact with the Taft Research Institute in Cleveland, Ohio, and this group has a tremendous file on advanced information and treatment. And they have stated that they are available to us or any group or any agency that requires their services. Certainly, I would recommend to this entire audience and to the conferees the use of that agency.

I would close with the following suggestions:

1. The city of Homestead recognizes the valid position of wastewater treatment and that it should be on a regional basis.

We do not necessarily agree that a region has to be of any particular size. Region can apply to an area that may not fit Dade County's definition of the word "region."

2. We do not agree without adequate study that Dade County can construct and operate a "regional" facility

at a lesser cost than can the city of Homestead nor do we agree that they could operate one at a lesser cost than the city of Homestead.

3. We in Homestead can demonstrate variable methods of sewage treatment and disposal apparently not available to Dade County.

4. We would request an extension of the deadline dates. And you certainly have covered that very adequately. Perhaps I do it with tongue in cheek, but nevertheless I make the effort and a reconsideration of the inland waterways use prohibition.

And we request this reconsideration from the standpoint that we feel there are processes that can be utilized that would not be of any detrimental effect on the receiving waters. And we would request that only in respect that it would meet all of the requirements of any county, State or Federal regulatory agency.

We offer the city of Homstead proposal that if deep well disposal is an acceptable method, at least on a temporary basis, that we be given the assistance of State and Federal agencies in obtaining demonstration grants and loans in order to make this determination. Although we have done as best we can in connection with deep well disposal, we feel that the ultimate goal of reuse and recharge of effluents is a goal we should be shooting for and only recognize deep well as a temporary expediency.

I relate this information to you to impress upon you that the city of Homestead had proceeded with all haste to solve its disposal treatment problem and that we are in a position with your assistance to likewise solve the problems at South Dade. We request the opportunity to do so.

Thank you.

MR. WHITE: Any comments, Mr. Redford, Mr. Patton?

MR. PATTON: Mr. Pearson, one question or two. You indicated you have done some looking into this possibility of using well-treated sewage for cooling water for your power plant. What are the relative volumes involved? How much freshwater do you use now for your power plant?

MR. PEARSON: At the present time, the engineers tell us we are in the vicinity of 20 MGD.

MR. PATTON: This is all freshwater?

MR. PEARSON: This is all freshwater.

MR. PATTON: What volume do you anticipate in the immediate future from the city of Homestead and Florida City if this were an approved method?

MR. PEARSON: In the way of possible --

MR. PATTON: Volume.

MR. PEARSON: Treated or freshwater use?

MR. PATTON: Treated sewage volume.

MR. PEARSON: The treated sewage volume at the present time for the city of Homestead is 1,350,000. We would anticipate with the expansion of the plan we will have that this will go to 4 million gallons given an area for 20 million involved now. In other words, to develop 20 million gallons of sewage combined on a recycling method back through the plant, including the evaporation process, we have to have an area much larger than we now have to accomplish this.

MR. PATTON: How much have you looked into this as far as the depth of study?

MR. PEARSON: We have engaged the engineering firm of Smith and Gillespie of Jacksonville. We have met with representatives from an engineering firm in Minneapolis who apparently are conducting pilot projects on this process. We are aware of several cities throughout the United States that are using this process. Burbank, California, is one. And there are others throughout the United States.

We feel it is a feasible method.

MR. PATTON: Have you talked to the people in Burbank?

MR. PEARSON: We have a letter from them, yes.

MR. PATTON: I have no other questions.

MR. TRAINA: Do you have an engineering report on this yet?

MR. PEARSON: Yes, a feasibility study.

MR. TRAINA: Is that available?

MR. PEARSON: Yes, sir. I would be happy to get one to you or you can have this copy here.

MR. TRAINA: I would like to have one available to me personally to look at it. I don't know if it is necessary for the record.

MR. PEARSON: I will see that you get one.

MR. TRAINA: That's all.

MR. WHITE: How much time do you think will be required by the city to work out a conceptual program with the county?

MR. PEARSON: Well, I believe we were given in effect 30 days yesterday. As I understood it, we were to show cause and effect why we believe our costs would be lower than that of the county. We expected to comply with that 30 days.

MR. WHITE: Very good.

Thank you very much, Mr. Pearson.

MR. PEARSON: Thank you.

MR. REDFORD: I see Mr. Sloan has come in if he could step up, please.

GARRETT SLOAN

DIRECTOR, DEPARTMENT OF WATER & SEWERS

MIAMI, FLORIDA

MR. SLOAN: Mr. Chairman, general conferees, we are very glad to be called on today in behalf of the City of Miami to give you a status report concerning our progress.

As you recall, there was to have been a meeting in April. And we did prepare a status report at that time which we filed with the Air and Water Pollution Control Department and with the Federal Agency in Atlanta. This report is a little more ranging in scope in order to give you some of the supporting side of our activity.

At this time it should be of interest to the conferees to receive a progress report from the Department of Water and Sewers of the City of Miami concerning its plans for the implementation of improvements to the City of Miami Sewage Treatment Plant on Virginia Key, as follows:

A. In order to prepare to issue future serial sewer revenue bonds to finance the Department's share of the cost for the enlargement of the sewage treatment facilities on Virginia Key, the original trust indenture, prepared in 1952, is in the process of revision by the Department's bond counsel (Mitchell, Petty & Shetterly) in New York. That is the same firm that serves metropolitan Dade County and many other communities in the south Florida area -- Mitchell, Petty &

Shetterly. Outstanding bonds will be refunded in order to retire the original indenture.

B. The City Manager has recommended that all sanitary sewer operating and maintenance functions, currently being performed by other city agencies, be consolidated into the Department of Water and Sewers in the future. It is anticipated that plans for this consolidation will be completed at an early date.

C. All sanitary sewer and sewage disposal operating and maintenance functions of the City of Miami will be supported in the future by revenue obtained from sewage disposal service charges. The Department of Public Works activities are supported out of ad velorem tax revenues, the general fund of the city. Financing of capital improvements will be supported by the issuance of sewer revenue bonds and general obligation bonds, in accordance with existing statutes. Financing of future operation of large sewage disposal projects completely from service charges has been recommended by Federal Agencies.

D. The West Dade interceptor project is well advanced toward completion and facilities extending west of the Palmetto Bypass to S.W. 78th Place should be placed into operation within a very few days, and permit closing the Community Utilities sewage treatment plant. The completion of the first stage of this important project will permit further major extensions which will collect sewage from Westwood Lake and Southland Utilities, thus allowing these existing sewage treatment plants to be phased out.

E. The Sewer Division budget of the Department of Water and Sewers for 1971-72 has been approved by the City Commission, and provides for approximately $12,500,000 of plant enlargement for compliance with the State law. In its financial plan some $5,760,000 in Federal grants under Public Law 660 have been included. The first stage of expansion will provide a total plant capacity of 60 MGD at 90 percent removal by 1974.

F. The Department plans to issue $9,500,000 of sewer revenue bonds in December 1971, of which $3,500,000 will be for the purpose of refunding an outstanding issue and the remaining $6,000,000 will provide additional funds for plant extensions.

G. At this time the Department is awaiting favorable action on its applications for Federal grants under Public Law 660 needed for the partial financing of its 1971-72 capital budget. In its previous applications for project priority for Federal grant allocations within the State of Florida, the very low order of priority, 62, appeared to contradict the urgency of constructing enlargements to its sewage treatment plant. It is of interest to note that first priority in 1970 was granted to the city of Coral Gables for the installation of force main intercepting and pumping facilities which ultimately discharge to the Department's plant on Virginia Key.

H. A research project of 2 months' duration is currently in progress at our plant on Virginia Key. The "Unox" process is being tested at our expense by operation of a pilot plant furnished by the Union Carbide Corporation. This field demonstration should indicate whether the oxygenation method of aeration is economical and technically feasible for incorporation into plant expansion. You are all invited to visit this plant and make your own observations.

It is vital that the Department's project for enlargement of its facilities on Virginia Key be granted a sufficient degree of priority to entitle it to participate in Federal grant funds allocated to the State of Florida. Without Federal aid, we will not be able to carry out our part of the Master Plan within a desirable period of time.

I should add parenthetically that the installation of completed sewers within the City of Miami are also very much dependent on the HUD type of grants which more or less pass the progress of this type of construction work.

I would like to remind the conferees of the recent action earlier in June which I read in the press concerning three large cities which had been in serious controversy with Federal authorities. I am referring to Cleveland, Detroit, and Atlanta. As I read it, they finally made peace with the Federal Agencies from the standpoint of approving a grant program so that their projects could proceed. I think the City of Miami finds itself very much in a similar position at this time.

MR. WHITE: Any comments?

MR. TRAINA: Mr. Sloan, I was just checking with our grants people, and it appears your item G you refer to, a grant was made to you in the past week as a partial grant under your Application F-660. I just wanted to clear it up for the record.

If you would, give us some indication as to what is your next part of this plan. You have given us apparently under the grants program an application we just acted on. Are you presently to come through with another expansion of your Virginia Key plant?

MR. SLOAN: We have applied for some $5,760,000 grants as I say here some months ago. There was a deadline May 17, or some date like that. And we had completed the application prior to that date which we filed for our major program of enlarging our plant of Virginia Key.

I should explain that we are proceeding to design various parts of our plant expansion. And the most recent project that we designed and took bids on was a large engine-driven blower, large supply of additional air, for our activated sludge process, 20,000 cubic foot a minute unit. And we are still waiting for approval to award that job. We took bids on it in May, and I think we are possibly going to get some action on a reimbursable basis which, of course, is strictly a contingent type.

MR. TRAINA: I believe that is what I referred to. That grant apparently wasn't announced. We are just getting clarification. This refers to your project, our project No. 358, and the grant was made last week in the amount of $241,000.

MR. SLOAN: That's very good news to me. That is the first time I have heard it. We should have more of these meetings more frequently. Stimulate some interest here.

MR. PATTON: We might run out of money.

MR. TRAINA: Also, while I am here, the question has come up of expansion of the site, the present site. What plans or actions are imminent or not imminent with regard to this particular situation?

MR. SLOAN: Well, also, we hopefully have a little better news on that. Yesterday the Air and Water Pollution Control Board of the State of Florida issued findings concerning our central district. And I may not be stating this precisely correctly from a technical standpoint, but requesting that the City of Miami City Commission, that has control of the plant site, respond to a request concerning additional land area for expansion of the plant. This has been a difficult problem for us because we are an independent agency of the city operating under a separate board and handling our financing separately from the remainder of the city. So that we are not in a position to demand, so to speak, that they give us additional site.

However, I think that as of today, there is a little more receptive feeling on the part of the City Commission than there may have been in the past concerning this matter. And I would like to try to get that on the very earliest City Commission agenda during July. Because I think they go on vacation in August.

And if I can impose on Mr. Redford and others in the area that are interested in this matter to help support it, I think we may break through and be assured of the land we need. We first ran into this problem 3 or 4 years ago in our long-range planning and were denied repeatedly. Then we tried once again, starting last fall and running through maybe January and February, the winter months, in an effort to study the feasibility of taking in the city of Miami

Beach with our plant function. And that would have required more land than the 65 acres we now occupy because we would have had to build a new plant alongside our present plant due to the comparative size of Miami Beach.

So now we are in a situation of knowing that regardless of Miami Beach, we still have to have a lot more land there. Because after 1980 we will exceed the site which is only 10 years from now. And there is not a question in the world that we are going to have a lot more sewage to treat and require this site expansion.

MR. TRAINA: Well, just for the record, I think we will support the State position on this and ask that the city favorable consider this request.

MR. SLOAN: I will appreciate all the support or effort that you folks can put forth in this direction.

MR. WHITE: Thank you, Mr. Sloan.

MR. REDFORD: Burton Loebl for North Miami Beach.

BURTON B. LOEBL

CITY ATTORNEY - PUBLIC UTILITIES COUNSEL

NORTH MIAMI BEACH, FLORIDA

MR. LOEBL: My name is Burton B. Loebl. I am City Attorney - Public Utilities Counsel for the city of North Miami Beach.

Burton B. Loebl

The city of North Miami Beach is one of the northernmost municipalities in the county. And it owns and operates either the second largest or close to it publicly owned water and sewer system in the county. And I digress for a second.

I made a presentation to the State agency yesterday, and it reminds me of the classic about the attorney always presents three arguments to the Supreme Court when he argues the case. The first is the well-thought-out, logical statement that you give that you prepare the night before. And the second is the one that you give to the Supreme Court. And with the questioning by the Justices, it becomes disjointed, illogical, completely out of the ball park. And the third is all of the things you think about the next day.

And I am here the next day. And I apologize, I don't have a written statement to present to you.

But there are a few things, and one most vital, which I would like to conclude with. But I would like to respectfully call the attention of the conferees to the fact that there is a U.S. Geological Survey -- and Mr. Callahan and Mr. Conover were here this morning, and the conferees may or may not want to get some comments from them on it -- which is an evaluation of the hydrological effects of the Master Plan of Dade County. And it goes into it exhaustively. And I could read the summary of it to you if you want.

In fact, I left it there to begin with. Forgive me one second.

The proper title is "Preliminary Evaluation of the Hydrologic Effects of Implementing Water-Sewerage Plans, Dade County, Florida." And the summary conclusion says there are three very pressing problems in Dade County -- the disposal of sewage, the protection of the water supply, and preservation of a favorable environment.

The present plan for water management is directed toward flood control and increased reliance upon conservation areas for replenishment of water supply.

In 1968, the Corps of Engineers predicted that by 1976, competition would develop between water users in Southeastern Florida unless measures were taken to increase the storage capacity of Lake Okeechobee and to reduce wastage to the sea by back pumping and increase the capability of the central and southern Florida Flood Control District to route stored water in the conservation areas to the southern part of the system.

Consumptive load in Dade County under the existing master plans, however, probably will exceed the Corp's estimated delivery to Dade from the conservation area there.

And also in your own reports, in the conferees' reports, there are allusions to some of this. There was a comprehensive report by Robert O. Vernon, I think, the Chief Engineer of the Flood Control District, which is on page 235 of that volume. And there was a report submitted by a local engineer, a Warner Groom, which you will find on page 703.

And V. W. Storch, the Chief Engineer of the Flood Control District, indicated that there is still a lot of knowledge that needs amplification. And his report is in there.

But hopefully, this conference might be able to bring about some coordination and possibly an ongoing program at the same time that Dade County implement its Master Plan to go into the outfall; that the Flood Control District would work with the Corps of Engineers to see about storing water at the same time or at least get a plan going.

I understand since discussing this yesterday with the State agency, I have discussed it with Mr. Thoman who advises that he is going to request a massive study to be made which probably will be the answer. I mean, we couldn't ask for anything more than that if that is implemented. But, of course the same conditions, considerations, with a flood control district still should be taken into consideration because that is a separate body.

A policy decision on that point will have to be made by this group and the --

MR. TRAINA: Let me interrupt there because I think it is pertinent here. One of the recommendations of the first conference was an establishment of a technical committee to consider a water plan.

MR. LOEBL: Point 11, was it not?

MR. TRAINA: This committee has met. One of our senior people is chairing that committee working at this. It has met with a number of the local, State and Federal people. So that recommendation is being pursued by all the people involved.

MR. WHITE: I might add also, of course, we didn't specify which agency. And we left it open purposely so we could bring in any agency we felt could make a contribution. And your points are well taken from that standpoint. We will ask all of the appropriate Federal, State and local agencies to participate in this particular --

MR. LOEBL: I would like to digress for a second as there is a Professor McAllister at Florida Atlantic University who worked on a federally funded study of disposal into the sea who I was talking to about his study a few weeks ago. And he was quite concerned as he is one of the people who believes that outfall lines are a feasible answer. But he also feels that they are only a feasible answer if different criteria or implementation by the Flood Control District of their drainage canals are implemented. And he was quite perturbed that in the middle of the drought or at least what they claim was a drought, they had opened the gates of Hillsboro Canal and Palm Beach Canal and water hyacinths were floating all over the intercoastal waterway.

So they can allow a billion gallons of water to go in a flash by opening the gates for just a short while. And an outfall line, certainly there is no question there is going to have to be some integration with the Flood Control District in the question of water management in conjunction with these water outflows. That will probably be the answer. But as I say, that is a policy decision of this conference to make.

But we would urge that in ultimately deciding regarding the Dade County master plan that it be of a nature to be most flexible to accommodate any new concepts such a study may reveal. And in that connection, we, the city of North Miami Beach, must vigorously oppose by all means available the site selection of the North Miami Beach plant presently proposed in the interim plan.

Placing a massive regional plant in the eastern end of the county in the heart of the tourist attraction area is ill-conceived and motivated by expediencey because it was just available from another governmental body. And it is partly caused by the -- candidly, we believe -- pressures that were put on Dade County in the denial of their proposed previous plan for a Federal grant and naturally the timetables of this conference.

Now, opposition quite frankly is in regard to those collection systems that have salt infiltration in the lines so that the waters could never possibly be available for reclamation. And we recognize this. The existing plants now in the eastern end of the county, which is on 151st Street, the Sunny Isles plant -- there are some other smaller plants -- but those plants could be upgraded. And I have consulted with our consulting engineer about it. And those existing plants could be upgraded to secondary treatment for the eastern end of the county with a heavy salt infiltration to go into the outfall line.

And by the same token, then, if you do that, you can have a massive plant in the western end of the county probably in one of the industrial areas where there are many of them, where it will be much more suitable and then available for recycling at a later date in much closer proximity to the area where you probably would want to dispose of such recycled effluent when the state of the art reaches that point. I have a responsibility to call that to the attention of the conferees in that regard.

Now, in the same token, in referring once again to the Dade County plant -- and this is not in denegation of it; we want to cooperate -- I understand the State agency and the EPA has a policy any plant will ultimately have equitable rates. We have been assured of that.

By the same token, the Metro Water and Sewer Authority has already adopted certain policies which we believe at the present time create fixed policy decisions which will prevent worthwhile discussions leading to such, in our opinion,equitable rates. And if I may cite as some examples, they have the policy which EPA also has that the cost of all facilities should be paid for by the users of the facility. No tax money should be used to subsidize it.

Well, I don't know how fixed EPA's policy is on that. I would point out that in that connection, when you size a plant for long-term projections of many years in the distance and impose that cost upon the present users per capita, you are penalizing the high density users in existence at the present time who could use a much smaller plant and take care of their needs. And you enhance the value of the undeveloped lands immediately which then do give a tax increment to Dade County.

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Remember, Dade County is 2,000 square miles, probably one of your largest areas in the country that you are dealing with. There is a vast area of undeveloped land which the projections call for development at some time. Those areas are unincorporated areas. Those unincorporated areas are paying one tax, the people in a municipality have been paying taxes for many years. All of the people, both unincorporated and incorporated still want the same high degree of services available.

But in this establishment of a rate structure, it seems to me some thought might be given to some form of subsidizing the additional capacity that must be built in to take care of these projections for the future because of the enhancement of these vast areas that will be developed later and who will receive an enhancement immediately and partaking no part of the cost at the giving of a per capita basis.

MR. WHITE: Let me make a point here, and I might have to call some of our technical staff up to correct me if I make a misstatement.

But it is my understanding that we don't specify the type of financing that a local governmental body has to have for a sewerage or treatment project under our law. In many cases, some of this money can come from general obligation funds. For if we don't look beyond that point, as a general proposition, most of these things are revenue type undertakings -- that is, most of them financed by revenue bond issues. But we don't specify. I mean, certainly that is up to the local governments to work out that manner or the financing and how they might split it as you indicate.

MR. LOEBL: I pointed this out yesterday. And I read a glancing reference to it in either one of the statements made today or in one of the reports to this effect that there is an EPA policy about the users paying for the facility. And it may very well be that what they were referring to was the General Accounting Office's policy not to approve a grant where there is an expansion of a facility required because of commercial users on the theory that the general public should not be required to pay for additional facilities caused by someone who is getting a special benefit. That may be.

MR. WHITE: Well, there are some special rules relating to these type projects. But, again, the general obligation versus the revenue thing, I think both --

MR. LOEBL: I was just drawing that as an analogy. But to go on, other factors that I think at least this Board, these conferees, should be aware of so that possibly in whatever recommendations you come out with some allusion can be made so that the people dealing with the county will

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not be faced with fixed policies already in existence on a take-it-or-leave-it basis.

If there is a finding by this Board that there is some inequity or they should be negotiated, it at least will not put us in an untenable bargaining position.

As an example, Dade County's policy as of now is they should receive 7.5 percent interest return on any funds they put into these self-liquidating projects. In addition, their policy is to receive a 3 percent depreciation, 3 percent annual depreciation, on all of the assets of the facility, including donated assets or assets received through payment of a Federal grant.

Now, this is in direct contradiction to the policy of their own Metro Water and Sewer Board which is a regulatory agency countywide for rates which state that a private utility cannot in a computation of their rate base receive either any credit towards the rate base for donated assets, contributed assets, and in addition cannot receive any depreciation from those assets.

And yet the county in its negotiations with other bodies in this regional situation we are getting into expect to receive this 3 percent that they won't allow a private industry to have. These are factors that I submit to you in all humbleness certainly should be considered. And we should

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be in an equal bargaining position and not under a hammer of a timetable from the conferees saying, "You must get into a regional system," and then be forced to do it on whatever terms are dictated to us because there has been no consultation and no meetings whatsoever by the Metro Water and Sewer Authority with any municipalities or public groups in establishing these policies regarding rates.

There is one matter I must bring to the attention of the conferees. And Mr. Baljet touched on it this morning. And that is in regard to Mr. Hagan's report.

The city of North Miami Beach, the Myrtle Grove plant that we have, has been discussed practically in our absence because we never received notice in the past of any of these conferences where it has been discussed at previous meetings in these conferences. I am happy to see that the report shows that even though we are one of the major plants in the county that we are operating well within the standards -- in fact, in excess of the minimum standards of treatment.

However, many pressures were put on us by the conferees' recommendations to go into regional treatment by State agency, by proposed orders, in terms of violations which it turns out were erroneous, but still by the news media all of them to go into this regional plan with Dade County. And we had done so. We have contracted with Dade County to phase out the Myrtle Grove plant and turn it into a pumping station and allow them to take our effluent. And we are going to pay them a rate. And we are probably going to lose money on it, but we are doing it.

And now we find that Mr. Hagan has recommended after we have signed the contract that we shouldn't do that.

Now, frankly, do you want to talk estoppel justice or anything like that? But aside from that, I think it is something I have to point out. And it is one of the problems. We all recognize it.

The ecology, the environmental problems, are vast. And sometimes it is almost impossible for all of the different agencies dealing with it to keep up with what is happening. I get a lot of publications in my office, and there are just so many hours in the day and just so many things you can keep up with. But I think it is imperative I bring to the attention of you conferees, you gentlemen, this situation.

We have made the contract. We are going to live up to our contracts honorably made. It is recommendation, I think, No. 3, referring back to No. 1 in his report.

MR. TRAINA: Mr. Loebl, I recall the discussion we had with Mr. Baljet on that point. Agreed, there are some economic problems. How severe would they be in terms of the city of North Miami Beach if you were to continue that as a secondary treatment plant and still hook it to the ocean outfall system?

MR. LOEBL: Let's look at the first thing, Mr. Traina. I should point out in fairness, and I think this should be regarded in all of these discussions, it is really no problem on the city of North Miami Beach. We are a public body. And we represent the people. And the easiest thing for us is to abdicate our responsibility and say, "Gentlemen, whatever you say, that is it, we will do it, and let the people worry about it." But we have got a responsibility.

So it is not the city of North Miami Beach. It is the users of that system who will have to pay the cost of whatever these costs end up.

Now, here is what would be created. Our projections, our negotiations and everything and our contract, were predicated on phasing out the treatment plant and going into the county's interceptor line and then primary treatment into the outfall.

Now, that rate schedule will encompass, if there is a rate increase, a very slight one, because one more or less compensates for the other -- that is going to cost us a little more to go into the county's facility than if we had maintained our own treatment plant. But if we were to double that cost by keeping the treatment plant and also paying the county its rate structure, aside from the contractual part of it, we would wind up with our 21,000 users out of the entire county either doubling or possibly getting close to tripling their rates where no one else in the county would have this kind of burden. And certainly they are not going to look at that with equanimity.

But there is another factor I think I ought to point out that probably Mr. Hagan did not fully amplify, and it is this: True, we will be putting some million gallons a day of effluent into the Northeast Dade transmission system and treatment plant. However, that is going to be mixed with effluent from many other plants and collection systems which do not have our grade of treatment. So as a practical matter, even if we were to continue to give this high secondary treatment that we give, by the time it gets mixed with the other effluents, it is so insignificant in terms of what effect it would have by the time it got out into the ocean as to work a totally unrealistic financial burden on the users of our system for no preferential benefit. I mean, that is really the real problem.

MR. TRAINA: Mr. Loebl, a pound of BOD is a pound of BOD. And I agree there are pounds of concentration.

You mentioned specifically, you said this would double the cost. Is this in fact just a guess or estimate on your part to continue the operation in that secondary treatment plant in Myrtle Grove would double the cost?

MR. LOEBL: I could get it from my engineer, but I will say this: I know in the cost of negotiations I integrated the consultants we use, and I know I was told that the rate structure that we were going into with the county -- In other words, what I wanted to know in order to be able to bring to the City Council, the Public Utilities Commission of North Miami Beach, is what difference are we talking about in money if we go into this contract with the county. And I was told that the cost would be a little bit more. So obviously, to keep the plant, it is going to double.

MR. REDFORD: Mr. Loebl, could I interrupt for a moment? I would like to ask a question germane to your presentation of Mr. Baljet.

Don't step down. I would just like to request for clarification.

Mr. Baljet, in the North Dade transmission line, I believe, hasn't there been one or several plants that were treating sewage that have connected that are now dumping raw into this line?

MR. BALJET: That's right, Mr. Redford.

MR. REDFORD: Isn't one of those Miami Lakes?

MR. BALJET: That is correct, Mr. Redford.

MR. REDFORD: What was the volume? Do you recall roughly the volume of water that was going in there?

MR. BALJET: Between 1 and 2 MGD.

MR. REDFORD: Are there any other plants in that line, heretofore treated, that are now dumping in raw?

MR. BALJET: Yes.

MR. WHITE: If you need some support in just a minute --

MR. LOEBL: If Mr. Redford wants the floor --

MR. REDFORD: Mr. Baljet answered my question. The answer to the question was Mr. Baljet said that Miami Lakes was the only other plant under the conditions I stated.

MR. SOUTHWELL: No.

MR. REDFORD: Just a moment there, then.

MR. LOEBL: There are other plants. I think Mr. Southwell who has been planning and works with the county on these matters can probably give you some accurate information.

MR. BALJET: I might refer to the city of Hialeah system and their recent connection through the Dade County facility to a system, Mr. Redford.

MR. REDFORD: In any case, I think it is a point that there are one or several others that were treating and now dumping raw, is that correct?

MR. BALJET: Yes.

MR. LOEBL: We haven't gone in yet, but there will be others.

MR. REDFORD: There have been one or more plants that did give a degree of treatment to sewage who are now dumping into the North Miami transmission line and are giving no treatment prior to dumping. Is that correct?

MR. BALJET: That's correct.

MR. LOEBL: Well, I think in fairness, now, we should understand we are not talking about those plants alone going right out to the ocean. You are still going to wind up mixing those effluents with other effluents. And this is the whole idea of regional treatment -- get that stuff treated.

MR. REDFORD: I realize, Mr. Loebl. I am trying to show that there possibly might be an inequitable situation as far as North Miami Beach is concerned. In other words, you are being required to treat and then dump before you can put on the transmission line, whereas these people were treating and now are dumping without treating.

MR. LOEBL: I misunderstood. I thought you were going to make them treat, too. And I know it just wouldn't work.

MR. REDFORD: That's another way of going at it.

MR. LOEBL: As long as I have brought that to the attention of the conferees, I would point out in addition that, as I say, if we were to continue in line with the questions I have been asked, then it would have our people carrying the burden. And I know it is at least going to be double the cost and possibly more.

MR. TRAINA: Did you have an estimate of how much money you are talking in dollars to operate and maintain Myrtle Grove treatment plant.

MR. LOEBL: Mr. Southwell, can you answer that?

MR. SOUTHWELL: It would be approximately $100,000 a year for operation plus improvements that would have to be made since the schedule for that plant is the end of this month to take it out of service.

MR. TRAINA: It is $100,000 for operation?

MR. LOEBL: Of course, we have another simple solution. Sometime ago the city of North Miami Beach offered to sell to Dade County the entire Myrtle Grove sewage collection system, and we felt that this could be the nucleus of a collection system for Dade County in the north end of the county; that they could then go forward from there and build their regional, not only regional treatment facility and network, but also build from that as the nucleus of a collection system. But they indicated that they were not interested. We never even got to talk price. They just said they weren't interested in buying it. But that would be another solution if Dade County just takes the whole Myrtle Grove collection system, and they could handle the problem.

I appreciate the time you have given me. Unless you have got some questions --

MR. WHITE: Are there any questions or further comments?

(No response.)

If not, thank you, Mr. Loebl.

MR. LOEBL: Thank you.

MR. REDFORD: Mr. Bergacker of the city of Miami Beach.

JOHN BERGACKER

DIRECTOR OF PUBLIC WORKS

MIAMI BEACH, FLORIDA

MR. BERGACKER: I am John Bergacker, Director of Public Works, city of Miami Beach. I am here representing what I believe to be the second largest utility system in Dade County. I represent, as far as the system goes the communities of Miami Beach, Surfside, Belle Harbor, Bay Harbor Islands and North Bay Village.

The population served, permanent population, that is, is in the realm of 150,000 people. This does not include the large transient population that is generally in the island region which is also served, by the way.

I am concerned. In fact, I have two points to make. My comments are off the cuff strictly because I don't have a prepared statement at this time. I wasn't invited to this conference until yesterday.

The two points I want to discuss are:

One, regionalism for sewage treatment; and

Two, the quality standard.

I will begin on the first point, regionalism. I have already stated the sizes; I didn't state the volumes. We are talking about volume of 22 MGD that we are handling. The region is completely sewered. We are under orders by the State to adequately treat this sewage by January 1, 1974. We received this order less than 1 year ago.

Since we received this order, we have been attempting to comply with all haste. Our first attempt was to go with the City of Miami as we already have a good working relationship with that community as far as our water supply is concerned. The City of Miami's Water and Sewer Department, which is an authority, stated that they thought it was feasible and made a feasibility study which indicated that

John Bergacker

it was feasible.

There was one hitch. They didn't have the land available to expand their plant to include us.

When it became apparent that this appeared not to be a solution, the city of Miami Beach through our City Manager, Mr. Clifford O'Key, attempted another solution -- that being a joint project with the county at a site called Interama. This is still being pursued. And the proposal is included in the amended supplement to Metro Dade County 1961 Master Plan for Sewage Treatment.

Also, about this time, we decided maybe we better start looking at doing something for ourselves. After all, we were under the order, no one else. The deadline was for us. And being the second largest system in the county, we presumed and rightfully so, I think, that we would be considered a region to qualify for Government grants.

Yesterday, I was shocked to learn that we may not be. That is yesterday. The State has never indicated to us prior to this time we wouldn't be. In fact, every indication by the State up to this point has been that it is our problem to solve and that we would be eligible.

Getting along with treating it ourselves -- and when I say "treating it ourselves," I am talking about the whole region comprising the five communities that I spoke of earlier -- I have submitted to the State a proposal from the Union Carbide Corporation of a system wherein the Union Carbide Corporation will guarantee the quality effluent from a plant that can be designed on Miami Beach to take care of our situation. All I want to point up to you gentlemen is I would hate at this time to be placed in a position where you are going to say to us, "You can't be considered as a region any more and Government funding grants aren't available to you," when we have been acting in good faith all the way along in attempting to take care of the pollution problem. And we think we have got a solution.

Now, I want to get down to deadline dates. Mr. Steytler on June 23, 1971, at a meeting to present the Metropolitan Dade County Updated Master Plan for sanitary sewage handed out, I would say, a small supplement which is entitled, "Proposed Methods of Connecting to Dade County Sewerage System."

Oh, by the way, this material includes a schedule. Let me read the title. "Schedule for Recommended Immediate Program, North District, Metropolitan Dade County." That is the one that includes Miami Beach. And in this schedule timetable, they have the transmission system from Miami Beach on it, and it wouldn't be completed according to this timetable until September of 1975. Where does that place Miami Beach as far as Miami Beach?

MR. WHITE: I believe we covered that somewhat previously, and I am not accepting the proposal that we extend any deadlines. And we recognize that problem.

MR. BERGACKER: What I am wondering about is where does that place Miami Beach's order and deadline? It is quite evident if this plan is initiated --

MR. WHITE: I will ask Mr. Patton to speak to that.

MR. PATTON: I think this will be taken into consideration by the State. And I am sure it will be taken into consideration by the conferees because we know that not everything can be done. I think it was the consideration of the outline submitted by Mr. Steytler that so far has been reviewed by the State with certain legal implications kept in mind.

MR. REDFORD: I wanted to ask a question, Mr. Bergacker.

MR. BERGACKER: I have got just one little additional statement with regard to this if you please. I am here stating today that the proposal of Miami Beach doing its own treatment, providing Government grants are available, I think we can meet the deadline.

Now, go ahead with your question.

MR. REDFORD: My question in this matter is you are speaking of this conference, I gather, or maybe I am just inferring it, you would like to have, in case you could find in the next 30 days no way of getting an agreement with Dade County, some sort of a backup where perhaps the EPA or State or someone would accept Miami Beach as a region?

MR. BERGACKER: That is correct. That is exactly correct. Because our first intention -- don't get me wrong -- here is to go with the plan. I am not opposing the plan as such. I am in favor of it.

MR. REDFORD: Then in other words --

MR. BERGACKER: I don't like the deadlines.

MR. TRAINA: Neither do we, sir.

MR. REDFORD: This is strictly on my own, but I don't know many people who have been fined for not doing the impossible.

MR. BERGACKER: Careful there.

MR. REDFORD: In any case, this would be somewhat of a backup to you that if you could not come to an agreement within 30 days either to go north or go south, you would have assurance if these conferees could give the recommendation that the Miami Beach would be considered as a region. And this would be a backup plan as far as you are concerned?

MR. BERGACKER: That's exactly what I like because our whole intent here is to do really what the conferees want.

And that is to get that sewage treated to meet the criteria as soon as possible and as economically as possible to our region's taxpayers.

MR. WHITE: We really appreciate that attitude, Mr. Bergacker . But I don't think we are in a position to comment on this any more at this particular time. This has to be worked out. And you have been given 30 days is my understanding.

MR. BERGACKER: O.K., I didn't expect an answer from you right today. I want to go on if I can unless you have got other questions at this point to what I have already said.

MR. PATTON: I have one, Mr. Bergacker. I think you heard the Board's thoughts as far as the land situation in Virginia Key is concerned yesterday.

MR. BERGACKER: Yes.

MR. PATTON: Would you prefer to go to Virginia Key with the City of Miami if they have the land available? Would this be your first choice rather than going to Interama?

MR. BERGACKER: Not necessarily, no. And I will tell you why. The whole thing boils down to economics.

MR. PATTON: O.K.

MR. WHITE: Mr. Bergacker, I have been handed a note that we must be out of the room by 5:30. And we have a few more. I want you to have your full say, but if you could speed it up, I would appreciate it.

MR. BERGACKER: I can summarize in about 3 minutes.

The other point that I wanted to bring up --

I want to get back on this one before I end here.

Legally I think on this grant business, there is something that says that a regional planning authority sets up the regions or approves the regions or some such thing. Anyway, with reference to that --

MR. TRAINA: You will have to be more explicit on that. I don't know what you are referring to.

MR. BERGACKER: You made a question this morning as to whether this meant the supplement of Metro Dade County's has been approved by the regional planning authority.

MR. TRAINA: In order for it to get to our attention, it has to go through the normal regional clearinghouses and so on, yes. From that standpoint, it has to have that stamp of approval before we can consider it.

MR. BERGACKER: I have a question on that point, myself. I don't know that it has. And the reason I am raising a question is a member of the regional planning authority stood up on June 22 at the time the plan was submitted and stated that it had not been approved by the planning authority at that time. I don't know whether it has or hasn't. Most certainly, it ought to be.

But here is where it relates to Miami Beach: The plan that the planning authority had adopted for regionalization of sewage and wastewater treatment, Miami Beach was following that plan up to this date. Miami Beach was considered as a region. I don't know if we have all of a sudden got switched or not. It makes it a little difficult on us being the one that is under the order getting switched around by another agency.

Now, I want to get over to the quality criteria. I think Mr. Baljet already has stated what I was going to say. And I just want to reemphasize what he has stated. That being that I think this 90 percent BOD criteria is nebulous as far as pollutants to the environment are concerned. I think the criteria ought to be established along the lines that we recommend.

Unless there are any other questions --

MR. WHITE: Are there any questions or comments, Mr. Patton, Mr. Redford, Mr. Traina?

(No response.)

I would like to respond to one statement you made. And apparently we still have a point of confusion. And I will involve Mr. Patton in this.

As a normal procedure when notice of conferences is given, we correspond directly with the State agency responsible for this and advise, put them officially on notice. Then normally, the Environmental Protection Agency notifies all Federal Agencies of a conference and invites them to attend. It has generally been worked out. And I think this was discussed at the first session. And it appears in the transcript.

Now, we leave the notification requirements to the State for the local agencies. This is why I know an official notification went out to you from the Environmental Protection Agency.

And, Vince, do you have any comment on that?

MR. PATTON: Judging from the number of people who have been here, are here and asked to speak, there doesn't seem to be too much of a problem in the way of lack of notification, it seems to me.

MR. WHITE: I just wanted to make a point. Procedurally, this is the way we do it.

MR. PATTON: You are correct.

MR. BERGACKER: The thing is here we are. I don't want to dwell too much on this point. It is something that happened that I don't like. I wrote to Vincent Patton earlier, several months ago, on this very point because we weren't invited to the two previous conferences. And we are the second largest system right now in Dade County. And we didn't know about the conferences until after they were held.

But I don't want to dwell on that. That is gone by, and I like to think that we do have a good rapport with the State. At least, I am trying to establish one.

MR. WHITE: Thank you very much, Mr. Bergacker.

MR. BERGACKER: I have this proposed method of connecting to Dade County sewer system that was presented on June 22. I would like to enter it into the record.

MR. WHITE: Let's see what you refer to.

MR. BERGACKER: It includes the timetable. It includes the construction timetable that I referred to earlier in my talk.

MR. WHITE: Well, actually, to build the record, I see no problem about putting it in. I think we will have some printing problems. And let me ask you this: Would you be willing to photograph this and take it down so it could be reproduced better than that? I would like to accept this for the official record and not try to reproduce your map and what not in the transcript of the conference that is presented. Is that agreeable to you?

MR. LOEBL: All right, sir.

MR. WHITE: Then, the statement will be entered in the record and will appear in the transcript that we publish, but the other attachments will merely be in the official record which we maintain in Washington.

(The statement referred to follows, and the other attachments, marked Exhibit 3, are on file at HQ, EPA, Washington, D.C. and Region IV, Atlanta, Georgia.)

PROPOSED METHOD OF CONNECTING
TO DADE COUNTY SEWER SYSTEM

Dade County will construct the interceptor sewer system shown as initial interceptor construction in the Amended 1961 Master Plan and will also construct the treatment plants shown in that plan.

The attached plans and schedules indicate the location and construction time schedules for the various interceptor services and treatment plants.

Based on present cost estimates, three methods of connection to this system are available depending on the type of customer as follows:

Municipally Owned Utilities

The County will construct the necessary transmission mains and pumping stations as shown. The municipality will pay a connection fee of 10 cents per daily connected gallon to connect into the system and will build and maintain its own collection systems and such other facilities necessary to get to the County's lift station. In addition the cities will donate the land necessary for the County lift stations.

Privately Owned Utilities

The County will construct the interceptors as shown. The privately owned utility will construct the necessary lift stations and transmission system to connect to the County System and, in addition, will pay a rate of 20 cents per daily connected gallon as an immediate connection fee. Future connection fees, as the utility grows, will be charged at the rate of 30 cents per connected gallon. The utility will own and operate its collection systems and the lift stations involved but will donate the transmission facilities to the County.

Private Developers

Private developers will construct all collection and transmission facilities necessary to connect to the nearest adequate point in the County system and, in addition, pay a connection fee of 30 cents per daily rated connected gallon. All facilities will be donated to the County who will operate and maintain them.

Exceptions

The County has, over the past few years, entered into a number of agreements with municipalities and private utilities in regard to connection to the County system. These will be considered in determining final connection fees, and wherever financially feasible, will be honored.

Monthly Rates

Wholesale type rates will be established for municipal and private utilities. The basic difference being the costs attributed to pumping stations which will be borne directly by the privately owned utilities. The individual customers will pay a third rate.

The County will have two rate schedules for treatment purposes depending on whether the sewage is treated in a County plant or at the City of Miami plant.

County accounting records will be set up to determine the total cost, County's portion of cost and operating and maintenance costs of the collection systems, transmission systems, pumping stations and treatment plants, along with their applicable administrative costs.

The gallonage charge will be set to yield the operating and maintenance costs of those facilities used by the customer, a 3 percent depreciation of the total treatment plant costs, a 7-1/2 percent return on the County's investment in the treatment plant and a return on the treatment plant costs as necessary to pay back the State Loan.

Again certain exceptions will be made due to existing contracts, City of Miami method of billing and city of North Miami presently owning certain facilities to be used in their program.

MR. REDFORD: If there are no further questions, I would like to make an announcement. At this time, I think there are still about a dozen speakers, and we have approximately 2 hours left. Some of the speakers' names have just now been delivered. And I gather they wish to appear in rebuttal to things that have been said. And we will only be able to hear such speakers as we can here. And people who have already been listed, we are going to have to take them in the priority of the time they have applied.

So the next person is Jack Haygood of the city of Hialeah.

JACK HAYGOOD
DIRECTOR
HIALEAH WATER & SEWER DEPARTMENT
HIALEAH, FLORIDA

MR. HAYGOOD: Mr. Chairman, members of the conference, I will not discuss certain items I was going to discuss today because I think they have been covered fully. But I would like to address myself a little bit to the development of the sewer system in Hialeah briefly and then touch on this subject of additional sewer plants which are now in the North Dade outfall which vitally concern Hialeah.

Six months ago, Hialeah had 1,200 sewer customers.

At that time, we were just then developing our sewer system on the west side of Hialeah. We have had a $15 million bond issue now for some 2 years. We finally accepted our sewer system from the contractors just 2 months ago.

At the present time, we have 8,000 customers. So we now have about a third of Hialeah sewered. As a result of this sewer system, we entered into a contract with Dade County to take care of the outfall treatment of our sewage. This is a 40-year contract signed some 2 years ago. And it went into effect early this year. In January we started giving them flow.

We now have since that time eliminated some 9 or 10 different plants within the city. These plants at that time were all giving various types of treatment up to the full 95 percent. At the present time, some of those plants have been actually moved off the site. Some are still sitting on the site and have been sold and are waiting to be moved. And some are sitting there with the side maybe turned out where they used them to empty them out to get them actually out of location. Some of the lines to those plants are now going in a different direction. Where sewer lines used to feed into the plants, now they feed out the other side and go into our sewer system.

These plants were all established according to permits.

And they had one requirement in their permit which was when sewers become available, these plants would go out of operation and people would tie into the sewers. And this is what they have done. Each of those plants, and most of them are private plants, did go out of operation. They disposed of their plant. In some cases, we were the operators of the plant for the particular activity, and we now have turned the plant over or sold the plant for them.

The problem is now if all the plants which are existing are required now to go back into operation and start treating so they can dump into the North Dade line which does not have adequate treating facilities, we face two problems. We have some customers who are on this situation who did not go to their plants soon enough. So they may be forced to go back and start this double cost of operation.

We have others which got rid of their plant, and they wouldn't be faced with this. We will have various treatment of people lined up maybe on one street, particularly like Palm Springs Mile. We have 5 or 6 of those plants along there. Some 3 or 4 plants could be put back in operation. They are in such condition that they could with starting-up costs again go back into operation and provide treatment. And that could be dumped in the line.

These plants together would represent something like less than 10 percent of the total volume of sewage out of the city of Hialeah. So the effect of this, I don't think would be too great in the final outfall results.

The second problem we have become aware of is on advice of our attorney, our contract with the county requires them to take our sewage and really do what they want to with it. This is the way we feel our contract reads. It requires primary treatment, secondary treatment or even tertiary treatment. It is their responsibility to provide this. And we have a contract for 4 years for them to take care of our sewage based on certain rate. And they will do it on that basis, we feel.

If we now require these people to pay us a certain rate for their operation of their sewage into our line, then turn around and operate their plant again, they are going to be faced with some real financial burdens. And it is going to be very discriminatory. The one that didn't get rid of his plant, as I said, is going to be faced with it. The others are not.

As far as the regional sewer system, we are very much in favor of it. We became a part of it early in the game. In fact, we financed a good portion of that North Dade line with financing from the city of Hialeah to Dade County. We want to work right through that system. We are tied to it now. We don't want any other system, but a regional system.

I feel that any objections that we now have to the system can be worked out in this 30-day period. We just up to now have never had the chance, really, to meet with the Dade County people to work out our problems with them, but I don't feel we have any problems that can't be surmounted.

We have already gone in such a direction that we really can't reverse our field now and start going back to a regional plant which we certainly don't want. We know in our own area we are tied to a line which can take our flow. And it is flowing out of the line as far as we are concerned.

But I do feel that the recommendation that all the plants which exist which go into the North Dade that can be operated, be put back in operation, would be very discriminatory against the people and put us in a very poor legal position with our present contract with Dade County.

MR. WHITE: Are there any questions or comments?

(No response.)

If not, thank you, Mr. Haygood.

MR. REDFORD: Since we are taking the speakers pretty much in the order of their registration, we would like to call on now Mr. C. L. Reynolds, Division Manager of the General Waterworks.

C. L. REYNOLDS

DIVISION MANAGER

GENERAL WATERWORKS

MIAMI, FLORIDA

MR. REYNOLDS: My name is C. L. Reynolds, Division Manager, Waterworks Corporation. We are a privately owned and operated water and sewer company in Dade County.

The minutes of the earlier conferences will reflect our previous reports on our activities here. I think we know most of you, and I thank you gentlemen for calling on us.

I have just two items I wanted to speak on today. The first is with respect to our deep disposal well which we have constructed at our Snapper Creek Park sewage treatment facility. My remarks on that will relate to a matter of updating the conferees as to the present status of the well, and also reviewing certain features of the well with respect to the safety and provisions for safeguarding our water supply which have been the subject of some comment and concern here this morning and this afternoon.

This project is now approximately 3 years old since its inception. During that period of time, it has been carefully studied by the best minds that we could find with respect to hydrology, geology, sewage treatment, its effects on the environment. It has been subject to review from every agency that has legal authority in the State and county. The safety and protection of the water supply that we use in the Biscayne aquifer has been of paramount importance throughout this project.

Secondarily, the project and well is so constructed that we are also protecting the Florida aquifer which may be useful as a water resource at some time in the future.

The well design was carefully thought out and considered very fully, the prospect and methods of monitoring the system. There were several proposals for monitoring the effluent and its effects of the well being there on the various aquifers that we traversed in the construction of the well.

The final solution was based on one which provides the most immediate recognition of any possible problem with that well within the area that was most likely to be affected. And that is the hole that has been drilled through the earth to receive the casing. The thought is if there is a problem with that well, it will first appear in the immediate vicinity of the well. For that reason, there is an annular space that was left from approximately 1600 feet to the surface. It comes all the way through the Florida aquifer.

There is a constant stream of water coming up that annular space which is monitored topside for any possible change that would indicate problems with the well.

As the well goes through the Biscayne aquifer where we receive our drinking water, there are actually three steel casings and two concrete seals that protect the sewage effluent replacing inside of it, separate it from the Biscayne aquifer and the waters we drink.

I am confident that the best minds of the State have been brought to bear on this problem; that they have resolved the situation. And I think that many of the fears that have been expressed are largely a result of people who have been either uninformed or misinformed as to the project itself. Certainly we would not have proceeded with it had we thought there was any remote danger to our water supply. We have been convinced by the geologists and others that there is not.

At the same time, it is a new project. It is one that will need further study, will need further monitoring. We need to know a lot more things about it. And this we readily admit. But at the same time, there is no danger in proceeding along these lines to learn more because at the end of that road is the possible economic value to the area of being able to utilize this whether it is on an interim basis or for possibly a long-term basis, in lieu of long, expensive transmission mains and expensive ocean outfalls.

The well constitutes a direct linkage, we believe, with the waters of the ocean through another route.

Now, as to updating, the actual physical work on the well, the monitoring system has now been completed. The work on this carried from approximately February through May. The equipment was finally delivered very belatedly in February, having gone through problems with industrial strife and strikes and a couple of times backing up on redesign, refabrication. A period, then, from February is taken up in installation. And since then we have been in a partial operational stage to refine, check out, this monitoring equipment.

After completion of this work, we placed it into operation on an 8-hour-a-day basis to accumulate further data on the quality of our effluent. And we are on the verge of going to a full-time operation when the water levels in Snapper Creek canal reached a critical stage. It was decided locally that the best place for the effluent for the time being was in the canal which we have done.

Yesterday we received word that the water levels returned to normal. They have lifted the restrictions on local lawn sprinkling. So we would anticipate that we will be placing it in full-time operation during next week.

With respect to this monitoring system, and I think this may be about the third time that I have stood here and you all sat there and we talked about the monitoring system, in that, so that everyone understands what we are doing with it, we are 24 hours a day going to monitor the rate of flow, the pressure at the well head, dissolved oxygen, the pH, color, even residual and turbidity of our sewage effluent, also the specific conduction tanks of the sewage effluent as well as the water coming from the Florida aquifer annulus and the pressure on the Florida aquifer through the annulus.

There are several of these parameters which are tied to an automatic shutdown of well head pumps in the event of any malfunction or an effluent that is inferior quality. The well pumps shut down, and the effluent is diverted temporarily into the canal.

This is the program. We believe it will work. We believe it will provide all the safety features necessary and at the same time that our project is going forward, we would hope and welcome, as we have throughout the project, the assistance from USGS, State Geological Survey, Pollution Control and any other agency that would be interested in assisting us, watching us, helping us, or just plain keeping an eye on us.

MR. PATTON: Is that the first time the proposal --

MR. REYNOLDS: We have made it time and again. So today is no different.

I believe that about sums up the present status. The one thing I can report with respect to the operations that we have had to date is that at the present time there is no detectable difference between the conditions there now as to when we first ran the tests originally, checking out the permeabilities of the aquifer.

It may be of interest to some who did not see the prior reports that in that test we injected 4,000 gallons a minute into the boulder zone aquifer with a rise in pressure at that level of about 1.4 pounds per square inch which against a natural background pressure of over 1200 pounds per square inch is an insignificant rise.

My other comments go to another point. And, Mr. Chairman, do you have any questions on this now or would you like me to cover the other point?

MR. WHITE: Are there any questions or comments at this time?

MR. TRAINA: You say you are going to begin reinjecting within a week?

MR. REYNOLDS: Yes, sir. I anticipate this is the thing to do. I haven't talked with Mr. Baljet on the question, but the word from Flood Control came out yesterday. So I would rather not start it up over July 4th weekend. But I think next week we will be ready to go.

MR.WHITE: I think likely we will have some observers out real soon. Hopefully we can, anyway. We will attempt to.

MR. REYNOLDS: Then on the other point, it goes to Mr. Hagan's report this morning. And I don't know that I fully understand the objective of the recommendation No. 3 on page 13 with respect to a consideration of our total program in the county. It seems to me that the proposal is idealistic to the point of being one which would severely handicap large sections of the county as we try to go ahead and implement this master plan, parts of which are already under construction.

General Waterworks owns Community Utilities Corporation which is located at the Palmetto Expressway, Coral Way. For a period of some years, this plant has been unable to expand the size and scope of the facilities because there was an imminent connection to the West Dade Interceptor heading west to connect to this plant and phase it out. This program has taken some years to develop. During that period of time, the developers in the community service area have been unable to build. We have been physically stopped from doing any construction in that area until this connection is made.

Now, if we are required to continue the operation of this plant which has not been contemplated for all these years, is now suggested, it is an economic burden where we have to say we have just reached the bottom of the barrel. We can't afford to do both.

There have been pleas for Federal funds . And there have been reasons for delays for lack of funds. And I have to tell you gentlemen that the private utilities have the same barrel. And there is a bottom to it. And this is a severe economic burden.

By way of illustration, to make this tie-in with the county system, we have expended on the order of $500,000 to construct a 24-inch force main from our plant site to the county intercept. We are committed by contract to pay Dade County $213,000-odd as a connection fee when they say they are ready for us to begin to use it. So we are talking about $700,000 in miscellaneous expense in upgrading pumping stations.

First of all, that is a lot of money. That is already spent except the $200,000. I have not reviewed the contract since I read this recommendation this morning, and I don't know what our status would be with Dade County. I don't think they have the responsibility for taking that up. We would have to say we just can't come up with $213,000 to connect to your system and pay your operating expenses and spend $200,000 a year for such a matter to operate the plant at the same time.

The two expenses, it is like owning one Cadillac and having a big monthly payment and decide that you want to have another one in case the first one gets a flat tire. It just doesn't make any economic sense.

Now, I know that economics is a bad word when you are talking about pollution abatement. I have heard that said. I don't think it really is because when you get right down to the bottom line, you have got to come up with the money if you are going to abate pollution. The goals and objectives are fine. I am just saying this concept would hamper and set back the program. You would be drifted aside from your goals rather than to take another step toward them.

In the case of our facility there, the physical work necessary to implement this would be something on the order of another year of construction in order to implement it. I don't think that those sort of costs and additional imposition of burden are necessary for us to obtain our goals to clean up the environment here in Dade County. And I would respectfully request that the conferees reject the recommendation in the Federal report with respect to pretreatment of sewage if the receiving ocean outfall has reasonable efficiency.

MR. TRAINA: Mr. Reynolds, because you and other previous speakers have made this point on the economic issue, of course, from the standpoint -- again, I want to reiterate from the standpoint -- of pollution abatement, this is a valid recommendation. But we will, as far as I am concerned, consider your objection as well as we consider the ones made previously to this.

MR. WHITE: Any other comments?

(No response.)

If not, I would like to call a 5-minute recess during which time I would appreciate very much if the speakers who have not had a chance to appear would come forward and apprise me of the estimated time that you need for your preparation. We have 11 people yet to speak, and I think we have to be out of the room by 5:30. We would like to get everyone on.

I will verify at this time to see if we can make a little relaxation on that. But if you would come forward and give me an estimate, it would be helpful.

(Whereupon, a recess was taken.)

MR. WHITE: May we go back in session?

Before we get started, we have lost a few speakers. And if we stay on our time schedule, we will finish with about 10 minutes to spare, hopefully, if we can. I don't know.

But Mr. Redford, if you will please proceed.

MR. REDFORD: I want to give a certain amount of recognition here to some of the conservation societies. We are private citizens, unpaid, who are probably responsible for this thing in the first place. And at this time, I would like to give them a chance. They have been sitting here all day.

The first speaker would be Lloyd Miller, Secretary of Mangrove Chapter, Izaak Walton League.

LLOYD E. MILLER

SECRETARY, MANGROVE CHAPTER

IZAAK WALTON LEAGUE OF AMERICA

MIAMI SPRINGS, FLORIDA

MR. MILLER: Mr. Chairman, conferees, my name is Lloyd Miller. I am Secretary of the Izaak Walton League, Mangrove Chapter, Dade County.

It is just one of the hazards of making a presentation this late on the agenda, the somewhat depressing redundancy of a report that a few hours earlier had seemed to be such an example of sparkling originality. Notwithstanding, I will go ahead.

This conference first met 9 months ago, in October 1970. In February 1971, a second session was held to determine what, if any, progress had been made towards cleaning

Lloyd E. Miller

up Dade County's sewage mess. At both these meetings the conferees made a number of recommendations. It is interesting to review to see just what has happened to them. To start on a positive note, let's talk first about those recommendations that were actually followed and implemented.

Dade County was told to stop any new waste discharges into Lower Biscayne Bay, Everglades National Park and the canals that drain into them. As far as we know, this has been done. What's more, many of the sewage treatment plants which still dump effluents in these canals have improved their operations considerably. So we are glad to report that South Dade is a bit cleaner than before. But, unfortunately, there is no sign of how South Dade's sewage will be gotten out of creeks and canals by the conferees' deadline of January 1, 1974.

Another recommendation -- that wastes from boats be discharged to onshore treatment systems -- has been shelved pending publication of new Federal standards for pleasure craft. Dade County, of course, is not alone in the foot-dragging and not accomplishing this. States and counties throughout the Nation are waiting to see what the Federal standards will be.

We have already heard from the Army Engineers on their progress of cleaning up the hulks and debris of the

Miami River.

The requested inventory of all municipal and industrial wastes in Dade County is under way. The list of municipal sources is complete; the list of industrial sources is not. It was supposed to have been ready by April 1. It may be, as has been stated, ready for your November 1st meeting. We hope so.

Interim reports required of the County Pollution Control Officer have been filed -- the first in April, the second today.

So, gentlemen, in the 9 months, something has been done, but really very little of a positive, constructive nature. Let's look at what hasn't been done.

Most important of all, of course, the conferees ordered Dade County to prepare a detailed, certifiable master plan for sewage abatement. The plan must identify all significant sources of pollution. It must include schedules for construction, financing, preliminary and final planning, dates for contracts, and beginning of operation. This is the plan, or rather the somewhat sketchy sketch of it, which you are considering today. The State Pollution Control Board considered it yesterday and rather positively effectively turned it down.

In our opinion, Dade County's proposed plan has several major faults that must be corrected immediately before Metro can proceed as ordered on November 1st. Time is short, for the conferees also ordered a stop to all waste discharges into inland canals by January 1, 1973, and secondary treatment of 90 percent or better on all ocean outfalls by January 1, 1974.

In general, this may be somewhat redundant--the Mangrove Chapter of the IWLA has three major objections to Dade County's Amended Master Sewerage Plan:

1. It makes no provisions for recycling wastewater despite recommendations of recent State-Federal water enforcement conferences. This is rather inconceivable. It is recklessly wasteful of our freshwater supplies and takes no account of the recent salting of Dade County's wells during the past few months.

2. It makes no provisions for experimental or pilot recycling projects, in spite of water conference recommendations, and the fact that some private utilities are already recycling on their own while others are seeking to do so.

Coordination between Miami Beach and Homestead has been rather poor. None of them, of course, are ready to construct anything. So in sum, we must consider that this overall Master Plan as presented is almost frivolous.

Reviewing the plan as a whole, of course, its main fault is its unprecedented waste of water, freshwater supplies -- 175 MGD by 1985 and wastes 300 MGD by the year 2000. Obviously, if this sort of proposed system had been in effect during our recent drought, we would all have been drinking salt water.

In addition to the Master Sewerage Plan, the technical committee of representatives from EPA, the State of Florida, and Dade County was supposed to develop a regional water quality management plan "for the conservation and reuse of the waters of Dade County." You would think that would have been a clue for the folks who drew up this Master Plan. To our knowledge, this committee has met once, and progress has been not very discernible.

The county, U.S. Geological Survey, and EPA were told to "actively monitor the General Waterworks deep well system at Snapper Creek." General Waterworks, we are happy to hear, are monitoring their elements of their responsibility. The USGS and EPA have not been on the scene.

We were also told to "actively pursue a demonstration grant for the Perrine-Goulds plant to evaluate the feasibility of a recharge system." We don't even believe this has been applied for.

A report on the upgrading and expansion of the City of Miami's Virginia Key plant was due April 13. And as we know, this is still in limbo.

Last, but not least, of course, the conferees' recommendations that all new construction in Dade County be connected to adequate collection and sewage treatment systems. Our septic tank problem certainly appears in some areas, at least, so serious that in October the conferees threatened to stop new building permits while the county's cleanup program was under way.

Again, in February, the conferees found Dade County's response to this problem "vague and nonconclusive." Since then, of course, things have gone from bad to worse. Building permits on new houses have been granted, in anticipation of interceptor lines which are not yet complete. And only last week, our County Commission reversed itself and voted to allow septic tanks on residential lots less than 10,200 square feet. An ordinance that banned this practice would have gone into effect July 1, yesterday.

You can see in the 9 months since this enforcement conference began, taken in sum, Dade County has taken a step forward, a step backward, and several steps sideways. This, we submit, is a totally unsatisfactory performance record. If all enforcement conferences throughout the Nation do as badly as this one has done, then the whole process set up by the Clean Water Act is pretty much a joke.

Lloyd E. Miller

It must be obvious to anyone, even small children, that nothing positive and constructive will be done in Dade County, and that has so often been the case, unless the conferees put some muscle behind the recommendations. We do not believe that anything is going to happen except more foot-dragging until somebody gets a little dander up.

We suggest, therefore, that: The EPA issue no 660 grants in Dade County (except for research) until a satisfactory buildable plan is presented to, and approved by, the conferees and that a time schedule be established toward this with a little more meaning than the last timetable was established;

The State of Florida approve no 660 grant applications, again except for research, until Dade County moves to eliminate septic tanks in urban areas;

The State Pollution Control Board be asked not to approve any new pollution control system or hookups to existing systems until Dade County's Master Sewerage Plan is accepted and approved by the conferees; and that

The conferees make sure that Dade County's present experimental sewage injection system well is monitored by U.S. Geological Survey and that experiments be conducted with shallow well injections.

Thank you.

MR. PATTON: Mr. Miller, if I may, I have a question.

You commented that the County Commission had reversed itself and voted to allow septic tanks on lots of less than 10,200 square feet.

MR. MILLER: The effect of that. It had that effect, Mr. Patton. They voted not to enforce the ordinance that they had planned to enforce.

MR. PATTON: What about the regulation of the State, specifically the Department of Health and Rehabilitative Services, on septic tanks? Have those been recognized, ignored, or what is the story?

MR. MILLER: Since I don't know what goes on in our Commissioners' heads, I can only assume that they may have been ignored.

MR. REDFORD: I think Mr. Baljet could throw some light on that because he attended that meeting which I was unable to attend. He can tell you what the action was pretty much.

As I understand it, the law that was supposed to go through July 1 was that we have no septic tanks on a lot less than 10,200 feet. And I believe there would be no septic tank and well on any lots that were, unless they were double that size. And there were different sizes for duplexes with wells and septic tanks. And the Commission just did not act upon that law. And that law has not gone into effect.

So there are no restrictions.

I don't care if you have a 40 by 80 foot lot, of which there are some in Dade County. There is no restriction against putting a well and septic tank on a lot that size.

MR. PATTON: Mr. Baljet, would you comment on this, please?

MR. BALJET: Yes, Mr. Patton, it will be my pleasure.

The Commission has recommended that a study be initiated to study the effects of septic tanks on our groundwaters, both from a pollution control problem and from a public health standpoint. The law as it stands now in the Dade County Pollution Control Ordinance is still in effect. And it still requires 10,200 square feet for a residential home that is served by public water, doubling that size for a residential home that is not served by public water and has its own well.

However, it is requested that these sizes, 10,200 square feet and 20,400 square feet, be brought down to 10,000 square feet and 20,000 square feet so that they better meet the standard lot sizes that predominate in Dade County. To this, we will not have any objection.

As far as eliminating this law or doing away with it entirely or modifying it to some extent, this would require public hearings. Any amendment to an existing county ordinance requires a public hearing and a second public hearing before it can be amended and before it is adopted. So we are by far still far away from such a change in the ordinance.

Dade County Pollution Control will recommend, as I already have stated in my brief presentation here, that we can see that while a study is being conducted on lots that are platted, have public water supply available, fine, let's grandfather those in, but definitely let's have the full ordinance in effect and those lots that have septic tanks and private wells, both serving the same facility.

MR. REDFORD: Well, could you explain what was the action of the Commission on this, then?

MR. BALJET: Basically, the Commission requested that on July 8, the Pollution Control Hearing Board looks into this problem and comes up with pertinent recommendations to the Commission which the Commission either then can accept or cannot accept. At this time I can assure you that even the County Attorney has not been instructed yet to draft an amended ordinance as it pertains to septic tanks.

MR. REDFORD: Was this a proposed ordinance of the 10,200? What I am trying to get at is there was some action taken by the city, the County Commission, on this, I believe, the other day. What precisely was their action other than the recommendations for a study? Did they vote to enforce this law or are we still on 10,200 for septic tanks?

MR. BALJET: They recommended that 10,200 be reduced to 10,000 and that the 20,400 square feet be reduced to 20,000. There really was no pertinent action by the County Commission other than looking to Dade County Pollution Control Officer and the Dade County Pollution Control Hearing Board to come up with specific recommendations on either recommending, yes, the law will remain in full effect, or, no, we need some sort of amendment which is feasible.

MR. REDFORD: And the action will be taken next week on that?

MR. BALJET: The problem will be looked into on July 8 which is the next Pollution Control Hearing Board meeting.

MR. REDFORD: I see.

MR. TRAINA: Mr. Patton, what is the State law? Is there now a State regulation or legislation regarding septic tanks in Florida?

MR. PATTON: There is a regulation by the Department of Health and Rehabilitative Services. I believe Mr. Baljet is familiar with that.

MR. TRAINA: Is this an enforceable law by the State?

MR. BALJET: The State law, Mr. Traina, provides a

5-year grandfather clause for lots that are presently platted. In other words, this particular law will go in full effect five years from the date of enactment.

MR. TRAINA: I guess that answers it.

MR. WHITE: Thank you, Mr. Baljet.

I have one comment to make with respect to Mr. Miller's statement. I want to assure him we are going to make every effort to see that the experimental well is monitored.

And Mr. Traina, do you have a comment with respect to Mr. Miller's presentation?

MR. TRAINA: No, I don't have any.

MR. WHITE: Fine.

MR. REDFORD: Mr. McCluney of the Audubon Society, please.

ROSS McCLUNEY
CHAIRMAN, BISCAYNE BAY COMMITTEE
TROPICAL AUDUBON SOCIETY
CORAL GABLES, FLORIDA

MR. McCLUNEY: My name is Ross McCluney, M-c-C-l-u-n-e-y. I am a member of the Board of Directors of Tropical Audubon Society.

The position of the Audubon Society can be summed up with a statement "you can't flush a dry toilet." We are concerned with implementing the recycling of adequately treated wastewater as soon as possible. And we very much appreciate the comments of Mr. Thoman this morning. They were very helpful in clarifying many misconceptions about wastewater recycling which we and I am sure other individuals have had.

We fully understand that we can't just jump immediately into so-called unproven method of recycling treated sewage effluent. We are sorry if we appear to be a little hysterical in our insistence on conserving water to Mr. Thoman. In reply, I would like to paraphrase a comment made by Mr. Levin yesterday. It is difficult to keep from being a little bit hysterical when we are wasting badly needed water by dumping it untreated into the ocean.

But we would like to divide our recommendations into two parts -- long-term and short-term plans. In the long run, we recommend a total conversion of all Dade County sewage effluent into some kind of recycling system. This is the goal that I think most people agree upon.

In the short run, we recommend the following steps: Upgrade existing plants according to Mr. Hagan's recommendation No. 6 on page 14 of the Waste Inventory Report.

In addition, we feel Mr. Baljet's recommendation aimed at requiring strict residence standards, 100 percent strict standards, would aid in upgrading existing plants. Since you have to put the existing effluent somewhere while you are implementing a master plan, the Gulf Stream seems to be possibly the best place to put it, at least temporarily, provided this is done only through existing outfalls.

Most of the north and central regions, it would seem, would come under this category. In the south, however, we have many serious misgivings about the proposed construction of a new, expensive, major ocean outfall, an outfall which might not have to be used at all in the long run anyway. Such an outfall will be expensive, destructive of the bay and coastal reefs, and in general a highly undesirable solution to the problem.

Metro doesn't want an outfall. We don't want an outfall. Nobody really wants an outfall. But somebody asks what will we do with all that sewage effluent generated in the south portion of the county. You can't put it in the Everglades, you can't put it in the canals, you can't put it on or in the ground. So what can you do with it?

Well, our feeling is that the urgency of these statements, these questions, indicates the urgency of the need to develop an adequate, efficient, safe method of groundwater recharge for south Dade. We, therefore, strongly urge a crash program aimed at developing such a method for south

Florida.

Now, it has been said that local governments can't be expected to do research and development just to create the systems needed to solve their local problems; that such a function belongs more properly with the Federal Government which can then make available the developed technology for wide use all over the country. But different geographic regions have different problems. A solution that works for Dade County, for south Dade, won't likely be good for Florida. So I am offering you a totally new concept that is called "local research and development" for local solutions to local problems, unique local problems.

We are doing this already in south Florida. Even though the deep well injection is undergoing in the south, there is also the system I think you will hear from Mr. Mishoe later concerned with recycling the water into the underground water. So what I am saying is perhaps Dade County with help from the State of Florida and U.S. Government should begin an urgent major project to develop an acceptable system of wastewater recycling for south Florida. There is much scientific and technical research in the area and elsewhere to help with such a project.

In the meantime, while we are waiting for the Government, such a system, we can hold ocean outfallage, deep well disposal, in our hat just in case a suitable method of recycling cannot be found. We should proceed with all haste in planning for the future recycling, incorporating these plans in the master plan itself and in the construction of and operating of existing collection lines which would be needed for the new system.

At this point, I have a question for Mr. Callahan if he is still here. Can the U.S. Geological Survey deep well disposal project be extended to include shallow well injection, recharge of renovated wastewater, for south Dade? Is this any kind of a possibility? Can someone answer that?

MR. TRAINA: I don't know if Mr. Callahan is here. Mr. Conover, do you have a comment you would like to make?

Will you come up?

MR. CONOVER: Yes, many of these things could be expanded, extended, looked into, just a matter of that aspect. But, you see, a good basic question is is this kind of water acceptable in the shallow aquifer?

MR. McCLUNEY: What I am suggesting is if we could forcefully inject the highly treated wastewater into the aquifer directly by pumps, then we could avoid some of the problems that Mr. Thoman mentioned this morning with flooding conditions. And it could conceivably be used -- Well, I am just suggesting that. I am not certainly equipped to give an accurate answer for it. It is something I haven't heard mentioned before.

Furthermore, we might consider the possibility of deep well injection strictly as an overflow emergency precaution, rather than go to an outfall to the ocean. That seems to be more in case something breaks down. Why not use the deep well? If you have to have a deep well, why not use it in emergency conditions to put it down below the aquifer.

MR. TRAINA: Excuse me, Mr. McCluney. Let me comment.

As I understand the interim proposal that was presented to us this morning, an ocean outfall in the south Dade is not part of that proposal. This was an alternative in the event that a deep well disposal system would not work for one reason or another. But the basic proposal was for deep well, to use it as a safety device or safety valve in an ultimate scheme for reuse. I made that point clear.

MR. PATTON: To carry that point just a little bit further, Mr. McCluney, I think Mr. Steytler made his point in the presentation that because of the limitation imposed by both State and Federal authorities, this was really the only thing that was left open to him as an alternative.

MR. McCLUNEY: Well, to save time, I wish to comment on Mr. Steytler's statement. The last thing we wish to do is hold up plans for immediately alleviating the pollution problem. We are only concerned that the long-range planning involve recycling as soon as it is humanly possible. In this connection, we were very pleased to hear of Mr. Steytler's comments in principle commitment to recharge of sewage effluent. In particular, if Mr. Steytler had included portions of his testimony in the Master Plan, we would have been much happier with it.

Our position is that recycling and deep well injection are parallel and competing possibilities. Both are in operation in south Dade. Both systems have uncertainties in terms of their long-range effects and desirability. But all things being equal, we feel that the recharge of properly treated effluent is the obviously more desirable technique and that it conserves freshwater whereas deep well injection does not. Recycling should, therefore, be given the highest priority in any consideration of alternative methods.

We were very pleased with Mr. Baljet's recommendation for a recharged project of south Dade and his displeasure with deep well disposal. We would like to see a final resolution of the treatment plant versus septic tank controversy and therefore welcome Mr. Baljet's proposed study to determine the maximum population density that can be and should be served by septic tanks. And I hope that is the sort of thing that comes out of that study.

In summary, we hate to be put in the position of holding up immediate action to reduce water pollution in Dade County. We support those portions of the Master Plan which aim at reducing pollution as soon as possible. Our main problem is with the absence of solid plans to conserve water in the master plan. We insist that at the very least, a statement of Dade County's intention to conserve recycling of treated effluent be included in the Master Plan itself.

It is recommended that the conferees take whatever action they can to insist that the concepts I have mentioned at least be included in a statement of intention or goals within the Master Plan. Also included should be a realistic discussion of these goals and plans for doing the necessary work to develop a safe, effective and efficient method for wastewater recycling in Dade County.

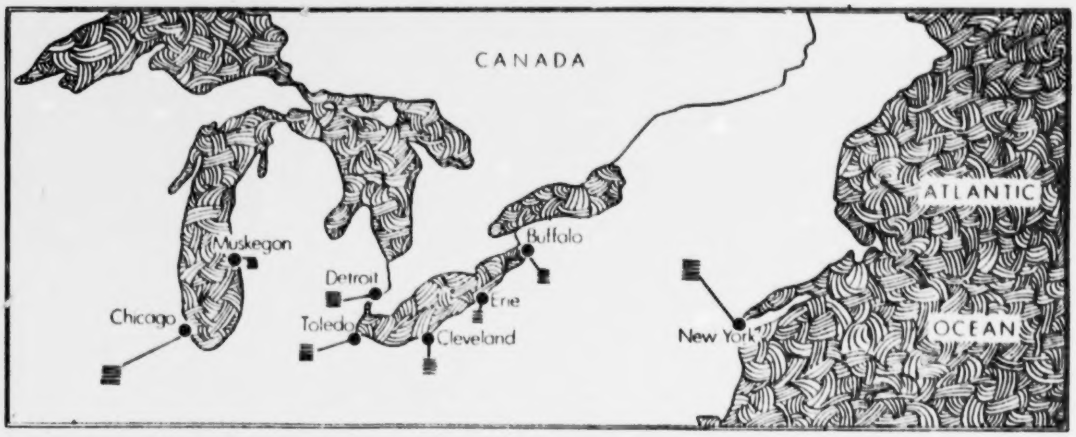
We further recommend that your deadlines not be relaxed until solid, good faith efforts with rules have been realized.

And that is the completion of my statement. Mr. Ruvin who is also on the Board of Tropical requested that I submit a copy of an article entitled "Reviving the Great Lakes" which appeared in the November 7, 1970, issue of the Saturday

Review and that it be made a part of the record.

MR. WHITE: Without objection, it will appear in the record.

("Reviving the Great Lakes" follows:)



Map indicates feasible inland irrigation sites for disposal of sewage now polluting Great Lakes.

REVIVING THE GREAT LAKES

First step: Stop the dumping of sewage. The Federal Water Quality Administration is backing a test of farmland fertilization.

by JOHN R. SHEAFFER

The death of Lake Erie has been announced. Premature aging, brought on by excessive intake of powerful stimulants, is given as the cause. And it is said that the whole Great Lakes system is rapidly being brought to the end of its life by the same malady.

This calamitous news should not be accepted as the final word. The Great Lakes have been grievously abused, but the effects are not irreversible. Technology competent to restore a fondly remembered past is available. All we lack is the will to use it.

The revival could be started by one simple official order: "No direct discharge of any wastes into any watercourse."

There are those who will say that such a directive would be meaningless for practical purposes because alternate means of waste disposal either are not available or are far too expensive to contemplate. But the Federal Water Quality Administration of the U.S. Department of the Interior is gambling the biggest single project grant in its history on the conviction that a workable substitute for indiscriminate dumping into the lakes is at hand. FWQA is committed to spend $2-million on the opening phase of a research project intended to demonstrate that sewage and factory effluent presently being poured into Lake Michigan can be diverted to fertilize barren land in Michigan. If all projections for the scheme prove out, this new waste disposal system will pay for itself and net a profit, perhaps even stimulate the economy of Michigan by building up an agro-industrial complex of respectable size.

Michigan's Muskegon County, fronting on the eastern shore of the lake directly opposite Milwaukee, is the scene of this precedent-setting experiment, which is built around acceptance of the principle that nature is a closed ecological system and that wastes, when properly cycled back into the system, are valuable resources. Wastes become liabilities only when they lose their rightful place in the cycle. Human and animal excrement, emptied into watercourses, stimulates aquatic plant growth and turns lakes into bogs. When spread upon the land, however, the same chemical constituents of waste give nutriment to food grains and vegetables.

Historically, the closed-system principle, though recognized by professional ecologists, has been ignored in practice in this country. We have dumped our wastes into rivers and lakes for generations. As long as the human population remained a statistically insignificant factor in the system, oxygen and bacteria in the water decomposed the waste and redistributed the chemicals in the purifying process. A certain amount of acceleration occurred in the rate of eutrophication (a geological process through which lakes gradually fill up and become first marshes and then dry land) but not enough to be distressing.

However, as cities and towns multiplied and grew and as household conveniences such as detergents were added to the burden of sewage, the amount of waste rose to flood proportions. Phosphorus, potassium, and nitrogen released into the water encouraged proliferation of colonies of plants to choke streams and lake beds, exhaust the oxygen supply, and overwhelm the restorative microorganisms. Idyllic watercourses deteriorated into stagnant, stinking pools.

Eight years ago, public-spirited members of the faculty of Pennsylvania State University reminded us of the intelligent way out of this dilemma. Long before then, the university had built a sewage disposal plant to serve the school together with the borough of State College, which existed chiefly as a dormitory community. The plant was designed in two stages: the first a sedimentation basin in which solid waste particles were separated out by gravity, the second a biological trap in which microorganisms digested organic matter in the wastes. The chlorinated effluent from the plant emptied into nearby Duck Pond and thence into Spring Creek, a tributary of the Juniata River, which flowed into the Susquehanna and on to Chesapeake Bay.

As the town and the school expanded, the amount of effluent added to the water rose from a million gallons a day to 3.5 million gallons a day, and the university faculty anticipated the time when the volume might reach six million gallons a day. Ultimately, if matters continued in that direction, Spring Creek would no longer be a body of water carrying away the liquid residue of human waste but a torrent of human waste carrying unrecognizable water through the beautiful Nittany Valley.

The geological structure of the valley was underlaid with limestone, which formed aquifers for storage of water underground all the way from Bellefonte to Scotia Mine. The water level in these subterranean reservoirs had been falling at the rate of 75 feet a year for a period of years. Being followers of the land grant college tradition, the Penn State faculty members were well aware of the remarkable filtering properties of the soil. They decided to test whether it would be possible to divert the sewage effluent from Duck Pond and spread it instead on adjacent crop land, open fields, and woods owned by the university. A network of irrigation pipes was spread out from the pond (thus avoiding Spring Creek) to the test plots, and the sewage effluent was driven through these pipes and sprinkled onto the soil summer and winter for a period of six years.

At the end of the test period, it was found that the water level in the underground aquifers had dropped only a few feet each year in contrast to the precipitous annual decline previously experienced. Corn and hay grown on the irrigated land yielded three times the harvest of fields not involved in the experiment. Wheat planted in the test plots retained the same yield as before, but the protein content of the wheat rose. Northern pine trees grew as rapidly as southern pines usually do. The bird and animal population of the test area thrived on the new regime [for further details see "The Crisis in Water—What Brought It On?" *SR*, Oct. 23, 1965]

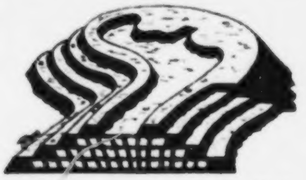
One of the inspirations for this experiment was work that had been done at Seabrook Farms in New Jersey by the late Professor Warren Thornthwaite, who was associated with the geography department at the University of Chicago while I was a graduate student there. I remember listening to his descriptions of the Seabrook project and wondering why he did not propose its application on a grand scale. Consequently, when I began to receive personal reports of the Penn State project from one of its prime movers, Dr. R. R. Parizek, I pondered more deeply than ever the implications of the idea's application to widespread urban areas.

Parizek, a young geologist who had taken his Ph.D. at the University of Illinois before going to Penn State, had been a college roommate of Dr. Arthur J. Zeizel, my assistant during my tenure as resource planning officer at the Northeast Illinois Planning Commission. Parizek visited Zeizel periodically and would tell us about what he was doing in Pennsylvania. The information he conveyed went into momentary storage at the back of my head through the three years during which I was occupied—first at the Northeast Illinois Planning Commission and then as research associate at the Center for Urban Studies of the University of Chicago—with problems of flood plain management. But in the spring of 1968, the subject moved to the front of my mind in response to a plea from Roderick Dittmer, director of planning for Muskegon County

Dittmer dropped in at the Center for Urban Studies one day and said he would welcome some guidance in drawing up a policy to govern Muskegon County's planning for the future use of the county's water resources. Muskegon County was party to a four-state (Wisconsin, Michigan, Illinois, and Indiana) pact calling for an 80 per cent reduction in phosphates discharged into Lake Michigan by the end of the year 1972. It was Dittmer's responsibility to recommend how this cleanup could best be done in his county. My research associates and I agreed to help him in return for what the experience could teach us about managing urban environments. Muskegon County had about every modern problem we could imagine—racial, economic, educational, environmental—yet it encompassed an area small enough to study in everyday operation. A population of 170,000 is contained within 512 square miles

Our initial investigations identified an interrelationship between two ma-

John R. Sheaffer was born in the Amish farming country of Lancaster County, Pennsylvania, thirty-nine years ago. After being graduated from Millersville State College and teaching at Donegal High School for three years, he accepted a graduate fellowship at the University of Chicago and there took his Ph.D. under the eminent geographer Gilbert White. Ever since then Sheaffer has been engaged in natural resource management. He first came to national prominence as designer of Mt. Trashmore, an artificial hill that is being built of garbage encased in native clay for use as a ski slope and winter recreation center in DuPage County, Illinois, just south of Chicago. In adjacent columns of *SR* he tells how an official of Muskegon County, Michigan, sought him out at the University of Chicago's Center for Urban Studies and asked his help in solving a sewage disposal problem related to pollution of Lake Michigan. The revolutionary nature of that project, which is now supported by the largest single grant of research funds ever made by the Federal Water Quality Administration, was recognized in a personal letter Sheaffer received from President Nixon. It also drew the attention of Robert F. Jordan III, general counsel to the Secretary of the United States Army and the Secretary's special assistant for civil functions. The most important of these functions are carried out by the Army Corps of Engineers, which has sweeping authority over the waterways of the country. Jordan offered Sheaffer civil service rank superior to that of a two-star general in order to persuade the bold young planner to take a year's leave from the University of Chicago faculty and serve as science adviser to Jordan. In recent weeks Sheaffer and Jordan's advance planning staff together have been exploring ways and means of shaping the engineers' traditional mission to make it—in Jordan's words—"responsive to current sets of priorities." "It looks to me," Jordan told *SR*'s science editor, "as if the trend of the future is going to have to be away from the local fragmentations of the past. It also looks as if waste disposal will have to be shunted away from the water. We intend to see what contribution the Corps of Engineers can make in the national interest."



Mount Trashmore, John Sheaffer's child, is growing upward in layers of garbage cells fixed in clay. Planned top-off point: 125 feet.

jor causes of Muskegon County's economic woes. The county had never developed an agricultural economy to balance its industrial strength, nor had it capitalized on the recreational resource potential represented by Muskegon, Mona, and White Lakes. Popular use of the lakes was inhibited by pollution of the water, while the poor agricultural yield was caused by low fertility of the soil. Obviously, a waste-water irrigation system similar in its fundamentals to the one demonstrated at Penn State could fertilize the barren land with chemicals recovered from sewage diverted from the lakes.

Why had such an eminently sensible concept not been pushed to a stage that would give it national prominence? Was it because no set of elected officials had ever laid down a sufficiently demanding policy to suggest the notion to public appointees responsible for municipal water and sewage works? Acting on that probability, we wrote for Dittmer a statement of policy that could be effectuated only by banning discharge of pesticides, insecticides, phosphates, and other pollutants into the rivers and lakes. Dittmer courageously endorsed the statement and presented it to the Muskegon County Planning Commission. The commission, rallying behind its fighting chairman, Michael Kobza, added its approval. And then we encountered trouble.

The Michigan State Water Resources Commission did not like our point of view. What we proposed would meet any situation anyone could think of up to the year 2000. Why go to all that expense? It was costly enough to try to think in terms of 1980.

If the United States Supreme Court had not delivered its famous legislative reapportionment decision—the "one man, one vote" edict—we very probably would have lost our case right there. The old forty-man board of Muskegon County commissioners almost certainly would have bogged down in endless rounds of precinct politics. Fortunately, a reapportioned board of only fifteen members took office on January 1, 1969. With a remarkable disregard for partisan considerations, the nine Democrats and six Republicans (with F. Charles Raap sitting as chairman) voted in February to support the County Planning Commission in the face of the state Water Resources Commission's displeasure. We were thus authorized to come up with a plan to carry out the policy we had enunciated.

In earlier efforts to break through the conventional restraints that have kept politics so far behind technology in the handling of waste disposal, I had formed a professional liaison with William J. Bauer, founder of the Bauer Engineering Company of Chicago. I now proposed that Muskegon County hire Bauer to draw up engineering specifications for a comprehensive sewage disposal system that would leave no environmental after-effects for future generations to worry about. A contract with Bauer was underwritten jointly by the county and the U.S. Department of Housing and Urban Development.

Bauer worked out a system far more sophisticated than Penn State's experimental project. He proposed coupling of the sewage outlets of twelve cities and townships into one great outlet pipe that swung away from Lake Michigan, Muskegon Lake, Mona Lake, and White Lake—traditional sinks for the wastes in these communities—and fifteen miles inland to virtually uninhabited sandy barrens of the eastern part of the county. There the pipe would empty into three aerated lagoons, each covering eight acres. These man-made basins, agitated continually by streams of air from mechanical mixers to minimize odor while bacterial colonies in the waste matter decomposed their host, would be big enough to hold the waste flow up to three days. This would enable accommodation of sudden surges of water such as occur after storms. And, because of the volume of water contained at one time, toxic industrial spills could kill the restorative bacteria and yet remain under treatment long enough for a new bacterial colony to grow and do its necessary work.

The enormous advantage represented by the latter circumstance may not be widely appreciated because most people do not realize that the conventional sewage treatment system in use in most American communities suffers regular spells during which the helpful bacteria are dead and the sewage simply passes through the system in an almost raw state. These spells last anywhere from seven to ten days. If six of them happen each year (one Midwestern state suggests that as an average), almost raw sewage is dumped into watercourses about one day in every week.

The system Bauer designed for Muskegon County called for two storage lagoons to hold the waste after it had passed through the aerating lagoons. Each of these storage receptacles would occupy 900 acres. Their purpose would be to hold the waste during the winter months when the ground would be too hardened by cold to absorb the effluent. After being withheld until the return of milder weather, the waste might be used as fertilizer during the remainder of the year.

Bauer's system finally called for the effluent to be piped from the storage lagoons to rotary irrigation rigs, which would spray the liquid with its suspended solids over almost 6,000 acres of now unproductive but potentially valuable sandy soil.

One appendix to the plan estimated a profit of $740,000 a year from sale of corn that could be grown on the irrigated fields, a quadrupling of the value of the land because of the irrigation, opening of at least 1,200 new jobs, recreational development of shorelines now useless because of uglification caused by water pollution, and construction of a 200-boat marina. Another appendix described a new industrial complex that might be built around the corn crop. Among its suggested products were feed for cattle, oil for the human diet, charcoal for use in Muskegon's existing paper mill, starch for the paper mill and for a foundry, carbon dioxide gas for a carbonate mill, calcium hydroxide for use on the irrigated land, and furfuryl alcohol for the finishing of office furniture.

Apart from its dollars and cents aspect, the Bauer system offered an intangible human bonus of inestimable value. This arises from a growing suspicion among public health physicians that many rapidly spreading diseases in this country are transmitted by viruses. How do the viruses travel? Their presence is not sought by any water quality tests now in use. Studies have been made of viruses in sewage, however, and thirteen different viruses have been found in raw sewage, in effluent from primary (one-step) sewage treatment plants, and in effluent from secondary (two-step) treatment plants as well. A month-long sequestration of the effluent in oxidation ponds kills 70 per cent of the viruses. But only after the effluent is filtered through soil do the viruses disappear altogether. Researchers have discovered that soil particles possess an electrical affinity for viruses, which allows the viruses to be grabbed by the soil and held long enough to be dismembered into innocuous protein.

Students of irrigation had one serious question about the Muskegon plan. It had to do with the established fact that elsewhere, in the past, prolonged irrigation saturated the land and created within it a mound of water that in time destroyed the enterprise. Because the thick layer of glacial debris—sands and gravel—underlying Muskegon County is incapable of holding water for long, the danger here was not great. Nevertheless, the Bauer system eliminated it by providing a network of drainage wells through which any threatening accumulation of excess water could be pumped back into the county's rivers and lakes.

The very farsightedness of the plan

frightened some people away from it. They just could not believe it would perform as promised. The cities of Muskegon and Muskegon Heights already had drafted plans for systems that would continue dumping treated sewage into the water. From a short-range perspective, these systems looked cheaper than ours. Consequently, they seemed more desirable to the local politicians, who not unnaturally followed the advice of sanitation consultants they had known and trusted for years: men who were still working with technologies no longer competent to anticipate the needs of an exploding population.

The continuing absence of approval from the Michigan Water Resources Commission encouraged this local opposition. To counter it, we invited Parizek to come out from Penn State and show a short documentary movie of the Penn State project in operation. Dittmer, Kobza, Raap, and Muskegon County Administrator Ray Wells responded by rounding up their colleagues and chartering an airliner to take them to Penn State to inspect that experiment personally.

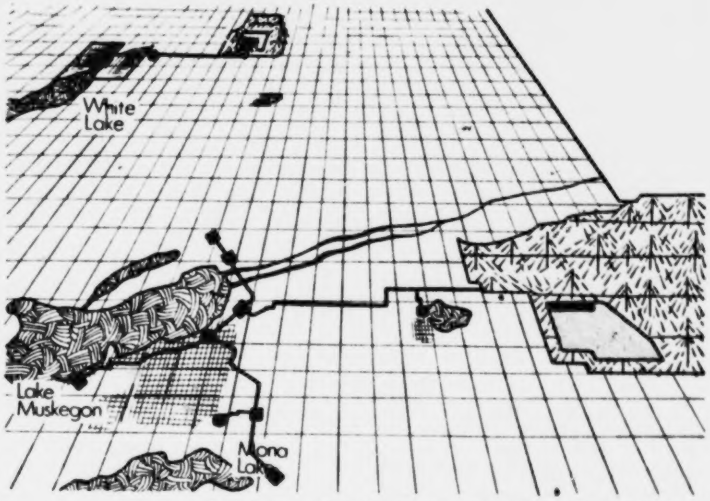
The political struggle surged back and forth, with the outcome unpredictable, until N. J. Lardieri, corporate director of air and water pollution for the S. D. Warren Paper Company, a division of Scott Paper—one of the three dominant industries in Muskegon County (Ott Chemical, a division of Corn Products, and Continental Motors, a division of Teledyne, are the other two)—asked to be shown the facts on which our policy decisions had been based. Although we figured his company would have to pay more than half the operating costs of the disposal system Bauer had planned (because charges for the system would be allocated according to the flow rate, and effluent from the S. D. Warren factory would make up 55 per cent of the total discharge into the system), Lardieri saw that our concept had the advantage of solving the water pollution problem once for all; the costs could be amortized with business-like predictability. When the other Muskegon industries followed S. D. Warren, our opposition began to crumble. But we still lacked the approval of the state of Michigan.

Michigan Congressman Guy Vander Jagt is the ranking Republican member of the Conservation and Natural Resources Subcommittee of the Government Operations Committee of the U.S. House of Representatives. On one of his frequent trips home to consult with his constituents, he heard of the furor we had raised. After meeting with us at dinner, he said: "It appears that our present efforts [in handling sewage disposal] are headed in the wrong direction." Later he added, "I will predict that the Muskegon County facility will be the focal point for the nation's battle to solve water pollution problems." He returned to Washington to make this prediction come true.

From David Dominick, head of the Federal Water Quality Administration, the Congressman went to Russell Train, chairman of the White House Council on Environmental Quality, and from Train to President Nixon's assistant for domestic affairs, John Ehrlichman, and Ehrlichman's environment specialist John Whittaker. The President must have heard about this round of visits, for he wrote me a letter expressing interest in the development of Muskegon's "new and promising approach to sewage disposal." Train voiced his enthusiasm to Dominick, who wrote glowingly to Congressman Vander Jagt. The Congressman personally carried Dominick's letter to Michigan Governor William Milliken. The Governor thereafter announced that he would make an environment tour of Michigan, with Muskegon as one of the stops. After his return to the capitol in Lansing at the end of this tour, the approval we had awaited from the Michigan Water Resources Commission came through.

In mid-September U.S. Interior Secretary Walter J. Hickel announced that FWQA, which operates within his Cabinet jurisdiction, had awarded a $1,083,750 research and demonstration grant and an additional $981,650 construction grant to the Muskegon project. These sums cover only the first year of a seven-year commitment. Secretary Hickel fixed the total cost at approximately $30-million. Of this, the federal government will pay 55 per cent, the state of Michigan 25 per cent, and Muskegon County the balance. Design specifications are now being prepared for bids. Construction will be awarded about January 1, 1971, and the system ought to be in operation in 1972.

"If this project is completely successful, there will be many more opportunities to utilize similar systems in the Great Lakes region," Secretary Hickel said in his September announcement. This is unquestionably true. The Great Lakes basin is made up of glacial outwash plains. Large stretches of well-drained soil suitable for irrigation lie within reach of urban centers but beyond commuting zones and thus are susceptible to purchase at unexploited farmland prices. If we take the Muskegon irrigation tract as a model, simple mathematics tells us that a billion gallons of waste water per day (that is the flow rate of Chicago's sewage disposal system, the largest in the country) can be disposed of on 260,000 acres of land. A preliminary survey of the major metropolitan areas in the United States suggests that all of them could be served in this manner by using marginal lands equivalent to no more than 2 per cent of the acreage on which fifty-nine principal crops were harvested in 1968.



—Doug Anderson following Muskegon County Planning Commission sketch

Artist's sketch above shows how sewage from Muskegon County communities will be piped away from lakes and taken inland to fertilize now barren but potentially profitable sand-dune country. Lower piping system covers Muskegon and Mona Lakes; upper system covers White Lake. The entire collection and irrigation network is designated in color.

© Saturday Review Inc NOVEMBER 7, 1970

MR. McCLUNEY: And, secondly, that the statement of Tropical Audubon Society to yesterday's meeting also be entered in the record. And I think you already have copies of that --

MR. TRAINA: Yes, we do.

MR. McCLUNEY: -- concerning the Master Plan.

(The above-mentioned statement follows:)

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MISS PATRICIA SMITH

June 25th, 1971

Chairman and Board Members
Florida Air & Water Pollution Control Board
315 S. Calhoun Street
Tallahassee, Florida

Gentlemen:

This letter is in response to your formal notice of the FLORIDA AIR & WATER POLLUTION CONTROL BOARD's meeting to be held July 1st in Miami Beach and the request that written objections to the "Master Plan" be made by June 25, 1971.

We find the "PLAN" as amended to be basicly unimaginative, shortsighted, ill-conceived and glaring in its failure to deal effectively with recycling concepts and to EVEN MENTION the long overdue need to modernize the existing and future network of collection pipes which should be the point of beginning of a study of this nature.

It is no secret that collection systems, especially in filled areas like Miami Beach, laid some 30 years ago, have become grossly inefficient conduits of waste water permitting massive salt intrusion. This salt intrusion preempts recycling of properly treated effluent without expensive desalinization. Therefore, for the "PLAN" to totally ignore evaluation of this aspect of the problem seriously undermines the credulity of its conclusions, in our opinion.

The "PLAN" talks throughout of secondary treatment (activated sludge-90% removal) and talks of continued use of existing outfalls as well as proposing a new 18.5 mile, 39 million dollar ocean outfall for the South District. We must strongly object to both concepts. It is equally philosophically indefensivable to maintain that it is O.K. to pollute the environment 10% as it is to maintain that a vast (though finite) ocean has an inexhausable ability to cleanse itself.

We further object to the "stop gap" proposal for deep well disposal recommended for the South District. It must be pointed out that the pilot South Dade well now in use only a brief time is yet unmonitored. There remains grave uncertainties with regard to potential threats to the Biscayne Aquafier as well as the possibilities of "earth slippages" as experienced in Colorado and California. To give the green light to this kind of "under the rug sweeping" at this time would be CRIMINAL.

We characterized the "PLAN" as UNIMAGINATIVE at the outset mainly because its authors totally limited their discussions to the vested stock-in trade of the sanitary engineering profession; leaving unexplored numerous pilot studies proving successful elsewhere.

We realize that current deadlines coupled with requirements for obtaining Federal Aid as well as demands from an overanxious Building Industry have put the backs of Metro officials to the walls. YET the people of Dade County deserve and must have far better than what is being offered.

This PLAN must go back to the drawing boards. The rarely mentioned sad condition of existing collection systems must be this time included so that their correction can be studied and past mistakes won't be repeated.

A broad study of EMERGING TECHNIQUES should be made - such as that now successfully operating in Michigan's Muskegan County where a concept embodying lagoon-like "treatment cells" and "living filters" ending in a "spray irrigation" process that removes dangerous nitrates and viruses while recycling water and nutrients to the environment in a manner that may prove to be a long range economic gain.

The END SOUGHT should not be "marching in place" but rather a capability for reclaiming waste water, for promoting replenishment of depleted water supplies, for improving soil fertility and for abating the pollution of our waters.

Pollution is nothing more than misplaced valuable resources. To those who would have us believe that we can't do better, I need only quote from a speech by Eugene J. Jenser, Operations Chief in the water quality control office of the EPA (recently delivered to the American Society of Civil Engineers at Los Angeles).

"First and foremost perhaps, we must stop being satisfied with yesterday's technology. New technology is available. Until it is transferred into actual treatment facilities, it is of little value. Just because we have relied on trickling filters and activated sludge plants in the past does not mean that we should continue to do so today.

You will object, perhaps, that these processes have been well tried and have proved reliable. Yes, they have proved reliable if by reliable one means that they are known to break down and are subject to erratic performance......"

Respectfully submitted,

Harvey Ruvin

HARVEY RUVIN
Urban Affairs Chairman
Tropical Audubon Society

MR. WHITE: Could I see that article you propose to print? Because we may have some problems reproducing it.

MR. McCLUNEY: This is a Penn State study of spray irrigation system for recycling wastewater, written by John Shaeffer.

MR. WHITE: We will likely need to get a better copy of the article. Would you assist us in achieving that?

MR. McCLUNEY: I will be sure Mr. Ruvin sends you the original or a very good copy of it.

MR. REDFORD: I have one question more or less to clarify the record. Certainly I was confused on this same thing, too. When you use the term "recycle" you mean you are using it interchangeably, recycle and recharge?

MR. McCLUNEY: Yes.

MR. WHITE: Any other comments?

MR. PATTON: I would like to make a couple of comments.

Mr. McCluney, you referred to spray irrigation in this article you introduced. There is a conference to be held in Orlando, I believe, the 8th of July, this coming week, on this. We will have quite a number of representatives there.

The only reason I mention it is this is a subject of considerable interest to the staff of our department. We are looking at this very closely in many areas. We are trying to define the designed engineering parameters where this can be applied. And I think rather than prolong the discussion, I will just say that we are extremely interested in it. And I am sure you are welcome to attend the conference.

MR. McCLUNEY: It seems to me this would be the most fantastic possibility for south Dade with its enormous agriculture. I wonder why the Departments from that area are not up here saying, "Look, since we take the water out of the ground anyway and spray it on the field, why not instead of using that, use some of this spray irrigation water."

MR. PATTON: The only point I would make, I think the real key to this concept is to make sure that the nutrients that are taken up by the plant grower are not allowed to go right on down into the groundwater. If you do, you will find the nutrients will move unchanged.

As far as effluent standard, let me comment really the State of Florida has an effluent standard and has had.

And this, we are applying in our permit, Statewide permit system.

People speak of 90 percent treatment efficiency, under the rule, Chapter 127.3, it says a minimum. And what we are attempting to do through people such as Mr. Baljet is relate the degree of treatment to the receiving waters. And you will find we are coming down in places where we say no discharge, you have to find some other answer to this problem. So this is the real key rather than just an arbitrary 90 percent across the board.

MR. WHITE: Are there any other comments?

(No response.)

Thank you, Mr. McCluney.

MR. REDFORD: The next speaker will be Gary Mishoe of the South Miami Heights Utilities.

GARY L. MISHOE
WASTEWATER TREATMENT SUPERINTENDENT
PERRINE, FLORIDA

MR. MISHOE: I would like to thank you gentlemen for the opportunity of letting me speak. This is addressed, of course, to the conference itself in reference to treated wastewater effluent, ground water recycle.

Mr. Chairman and conferees, in an effort to find the ultimate solutions to the problems of treated wastewater disposal, and surface water pollution in Dade County, the company respectfully submits this effluent recycle proposal for acceptance and approval by your respective conference -- and I would like to emphasize with "acceptance and approval." This company, in addition to the utility business, is sincerely interested in pollution abatement in our ecosystem and is therefore proposing this project as our contribution to the control effort.

The proposal is in the form of an introduction, scope, discussion and implementation. It includes the engineering data on the process and a layout plan.

Introduction. This is somewhat redundant, I must admit. Pollution of surface water bodies is a definite problem in Dade County, as well as nationwide. New methods of disposal whether effected by ocean discharge, deep well injection, or other means, is considered by many as not to be the optimum, or ultimate solution. Wastewater recycling, reuse, or regeneration, from a practical standpoint merits further investigation. This proposed recycle project has sufficient positive justifications to allow it to be implemented and scientifically studied. The results obtained should be valuable to the total community.

Scope. Provide tertiary treatment by mechanically introducing oxygen into initial one-third of the existing on-site spur canal to effect further biological treatment to the secondary treated plant effluent. The remaining canal length to be used for: solids deposition and stabilization; secondary disinfection by introduction of chlorine and/or ozone; and, effluent - groundwater interface.

An earthen dam with emergency spillway to be installed at the existing effluent end of the spur canal immediately upstream of Black Creek (Canal C-1) to effect canal water movement laterally into the groundwater via the canal bank rock strata.

Install test wells (as required), and study and document the existing groundwater conditions and the recycle effect.

Discussion. This project is proposed as a possible solution to the wastewater treatment effluent disposal dilemma. Supporting information is listed followsing:

1. Based on information received, connection to a South Dade regional system would be economically unfeasible. A connection fee of $0.30/MGD would total $525,000, excluding intercepting facilities, plus render useless an existing plant that has been recently updated greatly, and is continuing to be updated, and which is producing one of the best secondary effluents in Dade County. Obviously, for this amount of

money a company-owned deep well could be constructed complete with tertiary filters. In addition, a service charge of from $.30-0.55/1000 gallons appears to be in excess of what the company itself could effect the same degree of service.

2. From the literature and other information sources, it has been concluded that ocean disposal and deep well injection is not the long-range disposal method, but rather in most cases only an interim method. The latter is so "new" that demonstration projects -- and this is including Dade County -- haven't been in operation long enough for even a cursory evaluation.

3. Since ultimate wastewater treatment should be inseparable from the total world water resource cycle, wastewater reuse, recycle, and/or regeneration should be of primary consideration, rather than wastewater "disposal."

4. The University of Miami, Department of Biology and Department of Microbiology have agreed to conduct a testing program in order to study and document the effects of wastewater recycle based on this project.

I might add this includes testing in regard to viruses, fecal coliform, total coliform and nutrients.

This in effect permits an unbiased and authoritative research effort. The data accumulated will be greatly beneficial to the total environmental quality scientific community. Dade County Pollution Control will sponsor total study program -- at least the information I have received.

5. If proven acceptable, this method of recycle could be practiced throughout Dade County, or any area with similar conditions, and tend to reduce drought-caused water shortages and also tend to stop salt water intrusion into freshwater acquifers. It will also eliminate high impact pollution areas such as are caused by regional system plants; a problem dramatically illustrated in the Great Lakes area. It might even recede the salinity barrier.

6. The concern of pathogen contamination of the Biscayne Aquifer is not considered a serious threat inasmuch as: (1) Septic tanks have long been in use in Dade County in approximately 50 percent of the populated area, and such facilities provide at maximum only 50 percent BOD and suspended solids removal before entering the soil, and provide no disinfection watsoever; (2) the South Florida Flood Control District canal system at most points other than at their headwaters have levels that are above ground water levels, thus there is canal water flow into the groundwater. Since there is no record of serious contamination to date of the groundwater or of the drinking water from the wells that are in the ground, this gives sufficient justification for a controlled project of this type.

7. For many years effluent disposal in Florida, as well as in many other locations, has been effected with the use of (a) no-outfall oxidation ponds, (b) drainfields, and (c) soakage pits. To our knowledge no serious contamination of groundwater has occurred. We base part of this conclusion on the fact that plants incorporating these facilities are still being approved by the State and Dade County. Admittedly most of these installations have been, until recently, on installations with less than 0.25 MGD ADF or 250,000 gallons per day. Our plant capacity is 1.75. Currently we are receiving approximately 1 MGD.

8. For virtually decades northern wastewater systems have been effluenting treated and untreated, domestic and industrial wastewater into rivers and other water bodies, from which, downstream another community obtains its potable water supply. With proper conventional treatment of the surface water supply a potable, safe water has been, and is produced, with no widespread epidemics caused. With a degree of treatment of 95 percent rather than 70 to 85 percent as is common in northern locations, the potential of contamination is greatly reduced. In addition, Dade County's disinfection requirements far exceed those of most other locations.

9. On a long range basis, it may be required that additional treatment, or new types of treatment may be

required of Dade County potable water supplies. Economically, and technically this could be more feasible than "super" treatment of wastewater effluents. In any event, without good data a comprehensive evaluation by the scientific community could not be made.

10. One hundred years ago engineers and scientists didn't believe the Great Lakes could be polluted by discharging wastes into them. Probably if adjacent populations and industries remained intact to the degree that they were at that time, this hypothesis would have been true. Today it is common among many scientific and engineering circles to apply this same basic hypothesis to the world's oceans. Are people so naive to believe that our industry and population are at a standstill?

I am talking about not just the United States of America. I am talking about all the other nations of the world.

Pollute the oceans and we are all dead. Is relying on the concept that a solution will be developed before such pollution could occur a sound approach? It did not happen this way with the Great Lakes and our rivers.

11. There is a good possibility that a Federal demonstration contract can be secured to fund this project, through the Environmental Protection Agency Research and

Development Section. Depending on the results of the project as proposed, additional phases could be contracted at a later time. And I would like to emphasize again that approval by this conference would greatly assist us in obtaining such a contract.

12. There are a considerable number of influential persons and organizations that have voiced favorable opinion and support of this project and its objectives. If necessary, letters will be obtained to substantiate this statement.

Implementation:

1. Obtain necessary approvals from the various regulatory agencies. This is one of the things we are trying to do here today.

2. Meet with Dade County Pollution Control, Florida Department of Air and Water Pollution Control, Florida Bureau of Sanitary Engineering, Central and South Florida Flood Control District, United States Geological Survey, and the University of Miami to determine type, depth, size, number and location of the test wells; and the analyses required. We already have preliminary proposals from the University of Miami, and we have coordinated this effort with Dade County Pollution Control.

3. Install test wells, as required, and set up and commence the analytical testing of the groundwater, plant

effluent, and upstream and downstream Black Creek water. Document data for 6 months minimum to provide natural background data. Run a radioactive tracer test on the plant effluent under existing conditions.

4. Meet with company engineer and applicable agencies listed in item #2 above and finalize the physical equipment requirement for the tertiary and recycle facility. Finalize construction plans and specifications.

5. Construct the facility as per item #4.

6. Operate and analyze the facility for 2 years. Run a radioactive tracer during a dry and wet season.

7. Analyze data collected and make conclusions, which may be such that this would not be continued.

I also would like to make another statement which is on a different matter regarding this report.

MR. WHITE: Proceed.

MR. MISHOE: This is in regard to the report of "Waste Source Inventory and Evaluation, Dade County, Florida," prepared by the EPA. I would say that the company would take objection to the results that are listed in this report in relation to the loadings that are listed here and the pollutants of our sewage. I cannot make any definite objections because we may at some future time be involved in litigation with the Department and, therefore, it would not be my function to make such a statement. It would be a matter of alternatives.

But I would like for the record to make an objection to the results regarding South Miami Heights Public Utilities.

MR. TRAINA: Do you quarrel actually with the figures in that report? Is that what you are getting at, sir?

MR. MISHOE: Yes.

MR. TRAINA: Do you have figures to give us?

MR. MISHOE: I do not have them with me. But I can supply them within a 10-day grace period based on our monthly reports that are submitted monthly and on reports by private contracting firms that we have contracted with previous to my coming to the South Miami Heights Public Utility plan.

MR. WHITE: If you would proceed with the comments, Mr. Mishoe, and then I would prefer not to leave the record open, but we would like to have this information. If you would give it to us, we will take cognizance of it.

Let's go off the record a minute.

(Discussion off the record.)

MR. WHITE: Back on the record.

If you will, Mr. Mishoe, then you could submit this, and we will make it part of the official record and proceed with your comments.

(The above-mentioned information follows:)

SOUTH MIAMI HEIGHTS
PUBLIC UTILITY CORP.

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2525
2526

11450 S. W. 187TH STREET
SOUTH MIAMI HEIGHTS
PERRINE, FLORIDA

MAILING ADDRESS
P. O. BOX 250, PERRINE, FLA.

JULY 9, 1971

JOHN C. WHITE, DIRECTOR
REGULATORY PROGRAMS OFFICE
ENVIRONMENTAL PROTECTION AGENCY
1421 PEACHTREE STREET N. E.
ATLANTA, GEORGIA 30309

RE: CONFERENCE IN THE MATTER OF POLLUTION OF THE WATERS OF DADE COUNTY (SHORT TITLE) SHERATON FOUR AMBASSATORS HOTEL, MIAMI, FLORIDA; JULY 2, 1971

DEAR MR. WHITE:

REGARDING TESTIMONY BY MYSELF AT THE ABOVE SUBJECT CONFERENCE IN RELATION TO WASTEWATER ANALYSIS RESULTS REPORTED IN THE E. P. A. JUNE, 1971 "REPORT OF WASTE SOURCE INVENTORY AND EVALUATION DADE COUNTY, FLORIDA" THAT ARE VASTLY INCONSISTENT WITH THE COMPANY'S ROUTINE ANALYSIS, AS REQUESTED BY THE CONFEREES, I AM SUBMITTING COPIES OF OUR MONTHLY REPORTS TO THE CONFEREES FOR THE OFFICIAL RECORD. APPENDED HERETO ARE THE SUBJECT REPORT COPIES.

SINCERELY YOURS; PEACE,

Gary L. Mishoe

GARY L. MISHOE, C.O.
SUPERINTENDENT
WASTEWATER PLANT

GLM:MMT

CC: FILE ENCLOSURES

SEWAGE TREATMENT OPERATION REPORT

DAWPC PERMIT NO. ______

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
(Name of City, Subdivision, District, Trailer Park, etc.)

Mailing Address: P.O. BOX 250, PERRINE, 33157
(City or Utility Company)

MAY 1971 DADE
Month year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHOE	SUPT.	A
JESSE A. MONEY	LAB/OPR.	U
JOHN R. TARIBO	LAB/OPR.	U
SILAS BUSH	MEC./ATT.OP.	L
ALLAN K. PLEDGER	ASST. OPR.	L
EDISSON LOZADO	APR. OPR.	N.A.

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	54
Population Served ①	13,200
Equivalent Pop. (Hydraulic load)	9,400
Equivalent Pop. (Biological load)	9,600
Number of Active Connections	3,232

① ESTIMATE BASED ON CONNECTIONS.

Specific type of Treatment provided by this Plant:
CONTACT STABILIZATION
W/ AEROBIC DIGESTION

Please forward this report through your county or regional engineer by the 15' of each following month to:

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks: ______

Central Office Remarks: ______

(SECTION A)

THE DAILY REPORT

Plant Approval Number: 24 AUG 55 : S.N. 1654

Date	Weather		Sewage						Chlorination					Settleable Solids			Sludge					
				Flow MGD					Pre		Post											
Date	Rainfall	Temp °F	Temp °F	Max	Min	Total	Bypass	Grit & Screening Cu. Ft.	Pounds	PPM	Pounds	PPM	Residual PPM	Raw	Primary Effluent	Final Effluent	Fresh Sludge Added to Digester (1000 Gals)	W.A. SLUDGE YES/NO	Digester D.O. Unit 2	pH Primary Sludge	pH Supernatant	Supernatant Wasted (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0.0	78	78	1.8	0.2	1.0	0	TEMPORARILY USING BAR SCREEN, NO RECORD KEPT	0	0	75	9.0	1.4+			-0.1	14.9	YES		6.4		0
②		76	78	1.2	0.2	1.0					80	9.6	2.0			-0.1	10.0	YES		6.7	7.3	8.6
3		88	78	1.6	0.1	1.0					78	9.3	2.0	7.0	0.2	-0.1	11.5	YES		6.7	7.4	7.2
4		65	81	1.5	0.1	1.02					97	11.7	1.0	12.0	0.1	-0.1	8.6	NO	9.1	6.7	7.9	11.5
5		68	81	1.5	0.1	1.02					90	7.2	1.5	11.0	0.3	-0.1	15.1	YES	8.2	6.8	7.4	9.4
6		75	80	1.5	0.2	1.06					90	7.2	2.0+				7.9	NO				14.9
7		74	78	1.4	0.1	1.01					86	7.4	2.0+	10.0	0.4	-0.1	18.0	NO	5.5	6.8	7.5	7.9
8		82	80	1.4	0.1	1.01					80	6.8	1.4			-0.1	15.9	YES				18.0
⑨	↓	75	78	1.5	0.2	1.03					82	6.6	1.4			-0.1	13.0	YES				15.9
10	0.1	78	78	1.5	0.2	1.07					80	6.4	2.0	10.0	0.1	-0.1	7.2	YES		6.8	7.5	13.0
11	0.0	80	80	1.4	0.1	0.86					80	6.8	2.0	13.0	0.3	-0.1	12.9	NO	1.5	6.7		0
12	0.0	80	81	2.1	0.1	1.03					80	4.6	1.4	11.0	0.4	-0.1	12.9	YES	2.1	6.8		0
13	0.7	78	81	2.3	0.1	1.02					80	4.2	2.0	12.0	0.2	-0.1	11.5	NO		6.6		0
14	0.3	79	81	1.9	0.1	1.05			↓	↓	80	5.0	2.0	10.0	-0.1	-0.1	13.7	YES	5.0	6.5	7.5	18.7
15	2.1	82	81	1.5	0.2	1.13			40	3.2	80	6.4	1.5			0.1	16.6	YES		6.7		28
⑯	0.1	79		1.4	0.2	1.09			30	2.6	75	6.4	2.0+				10.8	YES		6.6	7.4	21.6
17	0.0	79	80	2.5	0.1	1.08			50	2.4	75	3.6	2.0			-0.1	10.8	YES		6.8	7.2	10.8
18		80	82	1.7	0.1	1.09			40	2.8	80	5.6	2.0	12.0	0.4	-0.1	10.1	NO	2.4	6.8	7.5	10.8
19		76	82	2.5	0.2	0.93			40	1.9	80	3.8	1.5	7.0	0.9	-0.1	13.7	YES	2.0	6.6	7.5	9.4
20		72	82	1.3	0.0	0.91			40	3.7	80	7.4	2.0	18.0	1.2	-0.1	15.8	YES	4.0	6.7	7.5	13.0
21	↓	78	80	1.3	0.0	0.88			50	4.6	80	7.4	2.0	9.0	0.4	-0.1	14.9	YES	1.5	6.8	7.3	15.8
22	1.5	74	80	1.9	0.0	1.0			50	3.1	75	4.7	2.0			0.1	18.0	YES		6.7		14.9
㉓	0.0	78	80	1.3	0.0	0.99			50	4.6	75	6.8	2.0			-0.1	12.3	YES		6.7	7.3	17.3
24		79	79	1.6	0.0	0.99			70	5.2	80	6.0	1.4	11.0	0.1	-0.1	12.3	YES	1.5	6.8		0
25		80	79	1.3	0.0	0.93			50	4.6	80	7.4	1.4	20.0	0.2	-0.1	8.6	YES		6.6	7.3	4.3
26		82	80	1.4	0.0	0.95			75	6.5	80	6.9	1.4	19.0	0.4	-0.1	10.8	YES	0.4	6.2	7.0	8.6
27	↓	79	80	1.8	0.1	0.93			75	6.0	80	5.3	2.0	9.5	0.5	-0.1	14.5	YES		6.3		0.7
28	0.4	80	80	2.1	0.0	0.93			60	3.4	80	4.6	2.0	18.0	0.6	-0.1	10.8	YES	2.5	6.2		0
29	0.0	80	80	1.7	0.1	0.92			60	4.2	80	5.6	1.4			0.1	14.3	YES		6.7		0
㉚		80	80	1.5	0.1	0.89			60	4.8	80	6.4	2.0			-0.1	7.9	YES		6.8	7.3	18.0
31	↓	72	80	1.7	0.0	0.96	↓		50	3.5	80	5.6	2.0+			-0.1	3.6	NO		6.6		0
Tot	5.2					29.2	0		0.89		2.50						378					272
Avg	0.17	78	80	1.6	0.1	0.94	0		50	3.9	81	6.5	1.8+	12.0	0.[illegible]	-0.1	12.2		3.5	6.6	7.4	8.8

38. Treatment Costs:

Labor:

Power:

Chemicals:

Misc:

Total:

39. Conditions at and below Outfall PROLIFIC ALGAE BLOOM

40. How is waste flow determined? FOXBORO EFFLUENT METER W/ 90° VEE WIER

41. How is dry or digested sludge disposed? LAND FILL

42. F/M CALCULATION DATA: TOTAL LBS. B.O.D. IN / IN-SYSTEM M.L.V.S.S.

01-13: USE 200 B.O.D. @ 1.0; 14-20: 175 B.O.D. @ 1.0; 21-31: 175 B.O.D. @ 0.90

43. Industrial waste problems NONE

(SECTION B)

$$\%R.A.S. = \left[\frac{(\text{CONTACT MLTSS})}{(\text{STAB. AVE MLTSS}) - (\text{CONTACT MLTSS})}\right] 100$$

Dissolved Oxygen					pH			Recirculation		Air Supplied	Settleable Solids % 30 Minutes	AERATORS						Date	F/M RATIO
												CONTACT			STABILIZATION				
R:	Secondary Effluent	(Pond) Spur Canal	CONTACT	STABILIZATION	Raw	Primary Effluent	Final Effluent	Settleable Solids % 30 Min.	Return Sludge (Act. Sludge)			MLSS	% Vol.	S.V.I.	MLSS (AVE)	% Vol.	S.V.I.		
24	25	26	27	28	29	30	31	32	33	34	35							37	
			0.6	2.3				8	147	2.34	8	930			1560		121	1	42
			0.8	2.5				21	122		10	790		127	1430		128	2	61
0.0	2.8	10+	0.7	1.5	7.4	7.4	7.5	22			9	1080	65	83	1900	69	104	3	56
0.0	2.6	7.8	1.5	0.7	7.5	7.4	7.3	48			23	2080	66	110	1910	64	100	4	42
0.1	2.5	8.7	1.6	1.6	7.5	7.4	7.3	14	109		9	810	76	111	1890	63	98	5	53
			1.0	0.6				21	100		10	1140	62	82	2280	62	96	6	45
0.1		9.5	0.9	0.8	7.5	7.4	7.0	35	117		11	1080	68	102	2120	64	99	7	46
			0.8	1.0				8	118		8	1130	69		2080	69	96	8	46
			0.7	1.3				17			9	860	70	105	830	70	97	9	90
0.0	1.8	9.0	0.6	0.9	7.3	7.4	7.7	8	134		10	1000	64	100	1750	70	106	10	52
0.0	2.4	12.0	1.3	0.5	7.4	7.4	7.2	22	162		12	1210	70	99	2160	68	104	11	42
0.0	1.4	9.0	0.6	0.3	7.4	7.4	7.2	8	109		8	1060	72		2140	69	100	12	43
			0.8	0.4	7.4	7.4	7.1	26	88		11	1160	69	94	2590	65	97	13	38
0.1	1.9	2.8	0.5	0.5	7.3	7.3	7.0	22	106		12	1230	58	101	2380	66	102	14	35
			0.7	0.5				8	96		8	1220			2500			15	39
			0.5	0.8				32	122		11	1180		92	2150		97	16	36
			0.8	0.5				14	105		12	1090	69	110	2170	68	97	17	38
0.1	1.9	6.5	0.5	0.3	7.2	7.2	7.2	22	106		13	1270	67	102	2510	67	102	18	33
0.1	1.9	9.0	0.4	0.3	7.3	7.3	7.1	20	131		14	1330	71	106	2300	72	112	19	25
0.1	1.9	6.0	0.5	0.3	7.2	7.2	7.1	27	137		12	1250	69	97	2160	68	107	20	37
0.1	2.0	7.0	1.6	1.2	7.2	7.2	7.0	29	145		13	1030	78	126	1920	71	125	21	36
			1.5	1.0				8	130		8	1120	70		1970	70	102	22	45
			1.3	1.2				13	167		10	1090	70	96	1670	70	94	23	41
0.0	1.2	7.0	0.6	0.6	7.1	7.2	7.3	8	125		8	890	69		1560	70	115	24	42
0.1	2.3	4.3	0.6	0.6	7.2	7.2	7.1	41	117		12	1030	69	116	1880	71	114	25	37
0.1	2.1	4.2	0.7	0.5	7.2	7.2	7.1	19	115		12	1090	70	111	2020	71	104	26	34
0.1	2.2	4.4	0.6	0.6	7.1	7.1	7.0	8	173		12	1120	63	107	1920	67	104	27	38
0.1	2.0	5.0	0.6	0.5	7.2	7.2	7.2	12	124		13	1080	71	120	1990	70	101	28	35
			0.5	0.5				19	130		8	1120			2090	70	94	29	35
			0.7	1.2				15			8	1080			1980	70	81	30	37
			0.8	2.0				19	128	↓	11	1210	70	92	2150	70	84	31	34
																		Tot	
-0.1	2.1	7.2+	0.8	0.9	7.3	7.3	7.2	23	125	2.34	13	1120	69	104	1980	68	103	Avg	39

44. General Comments, Operating problems or assistance desired

COLS. 10-13: ESTIMATE ONLY; NO SCALE FACILITY

COL. 7: AVE & TOTAL FROM 19TH ONLY. EFFLUENT ANTI-FOAM SPRAY PUMP OUT-OF-SERVICE UNTIL 18TH; WELL WATER WAS IN USE UNTIL THEN.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH ACTUAL FINDINGS.

Class "A"
Operator and Certificate/1968

(SECTION Ba)

DAWPC PERMIT NO._____ ROUTINE ANALYSIS

COUNTY DADE NAME AND ADDRESS South Miami Heights Public Utility Corp.

5 DAY BOD (PPM)							
DATE	RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
13	190	160	16	11	94	NOT APPLICABLE	NOT APPLICABLE
18	190	150	21	15	92		
20	200	180	10	13	92		
27	250	195	21	29	88		
AVE	208	188	17	17	9		

DATE	TOTAL SOLIDS (PPM)						SUSPENDED SOLIDS (PPM)					
	RAW		PRIMARY EFFLUENT		FINAL EFFLUENT		RAW		PRIMARY EFFLUENT		FINAL EFFLUENT	
	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL
53	54	55	56	57	58	59	60	61	62	63	64	65
13	652	63	527	67	338	97	212	13	94	21	12	25
18	752	48	574	61	405	87	123	29	95	20	10	30
20	654	58	561	67	421	85	192	16	105	22	8	43
27	651	55	528	68	434	85	234	27	119	32	8	33
AVE	677	56	548	66	400	89	190	21	103	24	10	33

DRYING BEDS							
DATE DRAWN	VOLUME DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV. FROM BEDS	BED No.	DRYING TIME (DAYS)	pH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
01	18.7	3.49	64	10	3	09	6.8
13	28.8	1.77	63	22	3	09	7.3
25	20.8	1.45		5/02	3	08	7.2
28	32.4	1.77	65		1		7.2
AVE	100.7	2.1	64			09	7.1

DIGESTION			
DATE	% T.S.	% V/T.S.	PH
74	75	76	77
3	1.3	61	
5	1.6	68	
7	1.6	62	
10	2.5	–	
12	2.2	64	
14	1.5	61	
19	1.7	63	
21	2.1	67	
AVE	1.8	64	

NUTRIENT FINAL EFF.		
DATE	PHOSPHATE	NITRATE
78	79	80
NOT RUN AT THIS TIME		

MPN OR MF				
DATE	SECONDARY EFFLUENT	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
26	APR.			
	790T.	78	790	330
FECAL				
26	APR.			
	490T.	18-	45	78

86\.
GENERAL NOTES:

Monthly ave. sewage flow (Col. 7 0.94

Show all routine analyses as follows:

(a) Sample composited over 12 hours; (from 8 A.M to 8 P.M.).

(b) Number of samples collected to form one composite sample: 12.

(c) Time interval between sample collections 1 hrs.

(d) Size of each sample used to form one composite sample 167 ml. (SMALLEST) 318 ml. (LARGEST)

R. A. S.				
DATE	MLSS	% VOL.	S.V.I.	PH
87	88	89	90	91
03	2008	59	110	
05	1536	63	91	
07	2999	65	118	
10	3068	67	B	
12	2628	68	B	
14	2469	57	89	
17	1296	70	108	
19	2088	70	96	
21	2328	72	124	
24	2616	69	B	
26	1772	70	107	
AVE	2250	66	105	

RECEIVING WATER 5 DAY BOD		
DATE	DOWN STREAM	UP STREAM
92	93	94
27	5.0	0.5
D. O.		
27	10.1	20+

RAW SLUDGE				
DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
07	REDUNDANT	0.97	46	54
12		0.96	27	73
14		1.8	29	71
19		1.97	28	72
21		1.23	28	72
26		2.5	22	78
AVE		1.57	30	70

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUTFALL NIL CUBIC FEET/SECOND. (AT THIS TIME)

101. DILUTION FACTOR 1:0. WILD FOWL

102. VISUAL STREAM CONDITIONS GREEN; FISH, TURTLES

103 Classification of Water I, II, III, IV III

(SECTION C)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Post Office Box 210 Jacksonville, Florida 32201

SO. MIAMI HEIGHTS
S. Miami Heights Public Utilities Corp.
MIAMI'S LOGICAL SUBURB

11450 S. W. 187TH STREET
SOUTH MIAMI HEIGHTS
PERRINE, FLORIDA

TEL. CEDAR 5-2524
2525
2526

MAILING ADDRESS
P. O. BOX 350, PERRINE, FLORIDA 33157

JUNE 14, 1971

OPERATION REPORT FOR WASTE TREATMENT FACILITIES
STATE OF FLORIDA, D.H.R.S., D.H., B.S.E.
ADDENDUM: MAY, 1971 FACILITY SER. NO: 1654

DURING THE MONTH, THE PLANT AS CONVERTED TO CONTACT STABILIZATION, AS PER PREVIOUSLY REPORTED, PERFORMED QUITE WELL. AS REFLECTED IN THE ROUTINE WEEKLY ANALYSIS, 90% OR GREATER B.O.D. AND SUSPENDED SOLIDS REMOVALS WERE REALYZED. IN ADDITION, ONLY 75% OF THE WASTEWATER TREATMENT UNITS WERE IN OPERATION; WHERE-AS, PREVIOUS TO THE CONVERSION, EFFICIENCIES WERE DIFFICULT TO MAINTAIN WITH 100% OF THE UNITS IN OPERATION. ALSO, THE SYSTEM HAS HANDLED COLLECTION SYSTEM MALFUNCTION SHOCK LOADS WITH LITTLE OR NO DETERIORATION, AND WITH VERY RAPID RECOVERY. THIS WAS NOT THE EXPERIENCE REALIZED WITH THE CONVENTIONAL ACTIVATED SLUDGE SYSTEM.

THE SUSPECTED PROBLEM WITH THE AEROBIC DIGESTOR AERATION EQUIPMENT, AS INDICATED LAST MONTH, WERE PROVEN TO BE REAL. SOLIDS DEPOSITION WAS FOUND TO BE FACTUAL. NUMEROUS TOTAL SOLIDS ANALYSIS WERE RUN ON SAMPLES TAKEN AT VARIOUS ELEVATIONS AND LOCATIONS. SAMPLES WERE COLLECTED WITH A SPRING-LOADED BACON BOMB; AND, WERE TAKEN IMMEDIATELY ADJACENT TO THE WALLS AND AT A POINT APPROXIMATELY 05. FT. FROM THE WALLS. CONCENTRATIONS NEAR THE BOTTOM AND UP TO APPROXIMATELY 06 FT. FROM THE BOTTOM IN BOTH UNITS VARIED UP TO 2.5 PERCENTAGE UNITS GREATER THAN THE SAMPLES TAKEN AT ELEVATIONS ABOVE THE 06. FT. OFF-BOTTOM LEVELS. WELLES PRODUCTS CORP.,MANUFACTURER OF THE AERATION EQUIPMENT, ACCEPTED, AT LEAST PARTIALLY, THE RESPONSIBILITY FOR THE EQUIPMENTS FAILURE. THEY RESPONDED FAIRLY RAPIDLY WITH CORRECTIVE MEASURES. TO DATE, THESE INCLUDE INSTALLATION OF A DRAFT TUBE EXTENTION AND MODIFIED DRAFT TUBE FLOW STRAIGHTENERS IN THE UNIT #1 (CONSTANT LEVEL) DIGESTOR. THE PLAN IS: TO FIELD CORRECT THIS UNIT AND THEN MANUFACTURE, AT THE FACTORY, A NEW MODIFIED DRAFT TUBE FOR UNIT #2. THE MODIFICATIONS, TO DATE, HAVE BEEN PARTIALLY SUCCESSFUL. HOMOGENOUS MIXING IS BEING EFFECTED BASED ON THE LIMITED ANALYSIS AT THIS TIME. AERATOR VORTEXING IS NOW A PROBLEM, THOUGH, SINCE THE ORIGINAL FLOW STRAIGHTENERS HAVE BEEN REMOVED; THE REASON FOR THEIR REMOVAL IS BECAUSE OF FOULING WITH EXTRANEOUS MATERIALS. IN ADDITION, AEROBIC CONDITIONS HAVE NOT BEEN EXTABLISHED; THIS MAY BE DUE TO THE APPROXIMATELY 30 HOURS OF DOWN-TIME OVER THE 23,24,& 25, PLUS THE DEPOSITION MATERIAL THAT IS NOW BEING SUSPENDED.

OTHER DEVELOPEMENTS INCLUDE:
(1) INSTALLATION OF A SECOND CHLORINATOR FOR PRECHLORINATION; AND, POST CHLORINATION BACK-UP.
(2) INSTALLATION OF CHLORINE CONTACT TANK SURFACE SKIMMER.
(3) ISOLATION OF THE RAW SEWAGE PUMPS' AUTOMATIC CONTROLLER FROM THE WET WELL GASES.
(4) BREAKING IN OF A NEW OPERATOR TRAINEE TO FACILITATE EXISTING PERSONNEL.

Gary L. Mishoe

GARY L. MISHOE,C.O.
SUPERINTENDENT
WASTE-WATER PLANT

SEWAGE TREATMENT OPERATION REPORT

D A W P C PERMIT NO. APPLIED FOR

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
Name of City, Subdivision, District, Trailer Park, etc.

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JOHN R. TARIBO	OPR./LAB	NO
SILAS BUSH	MECH/P.T.OP.	NO
ALLEN K. PLEDGER	ASST. OPR	NO
EDISON LOZADO	OPR. TRAIN.	NO

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W/ AEROBIC DIGESTION

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DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks: ____________

Central Office Remarks: ____________

(SECTION A)

THE DAILY REPORT

Plant Approval Number: 24 AUG 55; S.N. 1654

Date	Weather		Sewage					Grit & Screening Cu. Ft.	Chlorination					Settleable Solids			Sludge					
				Flow MGD					Pre		Post											
Date	Rainfall	Temp °F	Temp °F	Max	Min	Total	Bypass		Pounds	PPM	Estimate Pounds	At Max PPM Flow	Residual PPM	Raw	Primary Effluent	Final Effluent	Fresh Sludge Added to Digester (1000 Gals)	Excess Sludge (Act. Sludge)	Digester No. 2 D.O.	pH Primary Sludge	pH Supernatant	Supernatant Wasted (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0	70		1.85	0.0	0.87	0		0	0	127	8.0	2.0	9.0	0.2	-0.1	7.2	No		6.6	7.3	12.5
2		78	77	1.25		0.82		TEMPORARILY USING BAR SCREEN; NO RECORD KEPT			127	12.2	2.0	15.0	-0.1	-0.1	10.8		6.0	6.6	7.4	7.2
3		82	77	1.25		0.84					127	12.2	2.0+			-0.1	6.5			6.5	7.4	10.8
4		76		1.6		0.81					127	9.5	2.0				2.1			6.6		6.5
5	0.1	80	78	1.4		0.74					119	10.2	2.0	9.0	0.1	0.1	5.0			6.7		0.0
6	0	70		1.3		0.87					118	10.9	2.0+	11.0	0.6	-0.1	5.7		6.0	6.8		0.0
7		78		1.25		0.80					127	12.2	2.0+	13.0	0.6	-0.1	9.4			6.5		0.0
8		60		1.55		0.80					112	8.7	2.0+	9.0	0.6	-0.1	7.9		6.0	7.1	7.0	12.3
9		78		1.4		0.78					112	9.7	1.9	9.0	0.2	0.1	15.1	Yes		6.6	6.9	6.6
10		87	78	1.4		0.85					109	9.4	1.0			-0.1	13.7			6.5		8.6
11		70		1.25		0.87					105	10.1	2.0+				5.7				7.4	13.7
12		88		1.75		0.76					102	7.2	1.0			-0.1	4.5					5.7
13		70	77	1.6		0.76					113	8.5	1.4	15.0	0.6	-0.1	15.1		8.5	6.4	7.2	4.3
14		82	78	1.6		0.84					115	8.6	1.4	10.0	0.2	-0.1	7.9			6.5	7.4	15.1
15		66		1.3		0.81					104	7.6	1.4	12.0	0.5	-0.1	13.0			6.5	7.4	0.0
16		72		1.3		0.82					104	9.6	2.0	7.0	1.0	-0.1	38.3		4.0	6.5	7.4	10.8
17		74	81	1.7		0.86					105	7.4	1.9			-0.1				6.4		0.0
18		88		1.65		0.85					110	8.0	2.0+				15.1			6.5		0.0
19		84	79	1.3		0.81					109	9.6	2.0	7.0	-0.1	-0.1	5.8	No		6.6	7.5	19.5
20		74	85	1.65		0.82					104	7.6	2.0	12.0	0.5	-0.1	13.0	Yes	1.0	6.4	7.5	1.4
21		75		1.55		0.85					91	7.6	2.0	15.0	0.5	-0.1	11.5	Yes		6.6	7.4	13.0
22		80		1.75		0.83					91	6.8	2.0+	15.0	0.2	-0.1	25.2	No		6.6		0.0
23		89	79	1.5		0.75					99	7.8	2.0	10.0	0.1	-0.1		Yes	7.0	6.6		0.0
24		82	81	1.6	0.1	0.81					91	7.9	2.0			-0.1	15.1					0.0
25		82	79	1.2	0.5	0.82					121	12.1	2.0			-0.1	10.1			6.6	7.5	11.5
26		78	79	1.5	0.0	0.84					91	7.3	2.0	10.0	0.1	-0.1	10.1		6.6	6.7	7.4	10.1
27		76	80	1.5		0.85					86	6.9	2.0	10.0	0.2	-0.1	10.1	No	3.5	6.5	7.5	1.4
28		72	80	1.7		1.00					90	6.8	2.0	12.0	0.3	-0.1	12.2	Yes	4.5	6.5	7.4	18.7
29		76	81	1.9	0.2	1.03					80	5.1	2.0	13.0	0.1	-0.1	12.2		4.6	6.4	7.3	12.2
30		79	81	2.1		0.71					75	4.3	1.4	12.0	-0.1	-0.1	15.1		6.0	6.5		0.0
31																						
Tot	0.1					24.8	0		0	0	3216						323	19				19.5
Avg		77	79	1.55	-01	0.83	0		0	0	107	8.7	1.5+	11.0	0.3	-0.1	10.8	30	5.3	6.6	7.3	6.5

38. Treatment Costs:

Labor:

Power:

Chemicals:

Misc:

Total:

39. Conditions at and below Outfall PROLIFIC ALGAE BLOOM

40. How is waste flow determined? FOXBORO EFFLUENT METER W/ 90° VEE WIER

41. How is dry or digested sludge disposed? LAND FILL

42. F/M RATIO CALCULATION DATA: BASED ON M.L.V.S.S.

1ST-29TH : 200 MG/L B.O.D. & 0.85 M.G.D. A.D.F.

30TH : 200 MG/L B.O.D. & 1.00 M.G.D. A.D.F.

43. Industrial waste problems NIL.

(SECTION B)

$$\% \text{ R.A.S. RECIRC.} = \left[\frac{\text{CONTACT M.L.T.S.S.}}{(\text{STAB. M.L.T.S.S.}) - (\text{CONTACT M.L.T.S.S.})} \right] (100)$$

Dissolved Oxygen					pH			Recirculation		Air Supplied	Settleable Solids % 30 Minutes	AERATORS						Date	F/M RATIO
												CONTACT			STABILIZATI				
R.	Secondary Effluent	Pond (SPUR CANAL)	Downstream	Upstream	Raw	Primary Effluent	Final Effluent	R.A.S. % 30 MIN. SETT. SOLS.	Return Sludge (Act. Sludge)			MLTSS	% VOL.	S.V.I.	MLTSS (AVE)	% VOL.	S.V.I.		
24	25	26	27	28	29	30	31	32	33	34	35							37	
					7.2	7.3	7.5	23	137	1.62	14	1095		134	1810		127	1	42
0.1	2.0	5.0			7.5	7.5	7.0	56		1.94	12	1450		83	1670		151	2	41
								46	120	1.71	19	1165		163	2235		161	3	34
								72	106	1.84	20	1490		133	2905		137	④	27
					7.4	7.4	7.8	75	129	1.94	22	1610		137	2860		157	5	27
0.1	1.3	5.0			7.2	7.2	7.1	77	135	2.02	28	1570	72	178	2735	70	224	6	28
0.1	1.9	4.8			7.2	7.2	7.0	94	112	2.34	28	1570	71	179	2970	70	226	7	26
0.1	1.4	4.0			7.1	7.1	7.0	96	113	2.25	29	1605	70	180	3030	69	221	8	25
0.1	1.6	4.0			7.3	7.4	7.1	84	112	2.34	21	1920		148	2685		171	9	29
								41	124	2.34	20	1245		161	2250		133	10	34
								39	111	2.34	19	1125		169	2135		127	⑪	36
								35	165	2.34	17	1240		137	1990		126	12	37
0.1	2.6	7.0			7.5	7.4	7.1	27	120	2.24	12	1020	72	85	1865	71	123	13	39
0.1	1.4				7.3	7.4	7.2	23	154	2.32	13	1200	71	108	1980	70	116	14	37
0.1	2.8	5.0	11.0	8.2	7.4	7.4	7.0	23	130	2.32	12	1055	71	114	1870	68	117	15	40
0.1	2.3	4.5			7.4	7.4	7.0	35	192	2.34	12	1165	69	103	1770	70	118	16	41
—								12	146	2.31	12	950		126	1600		106	17	46
								8	125	2.34	8	825		8	1460		101	⑱	50
0.0	2.5	5.0			7.3	7.3	7.3	5		2.34	10	1055		95	1960		102	19	48
0.0	2.6	16.0	20.0		7.4	7.4	6.9	8	154	2.22	14	905	76	154	1490	72	111	20	48
0.1	2.5	12.0			7.5	7.5	6.9	8	160	2.34	8	940	75	8	1525	76	94	21	47
0.1	1.9	10.0			7.5	7.5	7.0	8	180	2.34	8	1110	73	8	1725	73	104	22	41
0.1	2.0	10.0			7.4	7.4	7.0	25		2.34	10	880		125	2155		84	23	43
								8	111	2.34	8	890		8	1690		100	24	46
								24	164	2.34	7	790		89	1265		95	㉕	57
0.2	2.0	8.0			7.4	7.3	7.3	8	117	2.34	10	710	71	141	1310	71	114	26	57
0.2	2.1	9.0			7.5	7.5	7.5	24	132	2.30	12	1015		118	1785		106	27	45
0.1	2.7	20+			7.4	7.4	7.2	48	158	2.25	12	980	70	122	1600	75	125	28	35
0.0	2.7	20+			7.4	7.4	7.3	35	141	2.34	12	930	77	129	1585	70	126	29	35
0.0	2.8	10+			7.5	7.4	7.6	32		2.34	11	1080	62	102	1545	72	129	30	46
																		31	
										67.2								Tot	
0.1	2.2	9.0±	15+	82	7.4	7.4	7.2	48	148	2.22	16	1130	71	131	1960	70	131	Avg	40

44. General Comments, Operating problems or assistance desired

NOTE MODIFICATIONS MADE TO COLUMN HEADINGS.

① REF: COL.7 DRASTIC INCREASE V 28-30 ASSUMED TO BE DUE TO EFFLUENT ANTI-FOAM SPRAY PUMP OUT-OF-SERVICE FOR REPAIRS AND WELL PUMP ON-THE-LINE; INCREASE NOT INCLUDED IN TOTAL OR AVERAGE.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH ACTUAL FINDINGS.

, CLASS A, 1968.

Operator and Certificate

(SECTION Ba)

DAWPC PERMIT NO. [illegible] ROUTINE ANALYSIS

COUNTY Dade NAME AND ADDRESS South Miami Heights Public Utility Corp, Perrine

DATE	5 DAY BOD (PPM) RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
01	205	155	24	20	90	NOT	APPLICABLE
06	175	130	26	23	87		
13	245	180	26	35	86		
15	155	130	16	27	83		
20	225	160	29	8	96		
22	235	185	21	19	92		
27	240	127	47	19	92		
29	210	163	22	16	92		
AVE	212	154	26	21	90		

DATE	TOTAL SOLIDS (PPM) RAW TOTAL	RAW PER CENT FIXED OF TOTAL	PRIMARY EFFLUENT TOTAL	PRIMARY EFFLUENT PER CENT FIXED OF TOTAL	FINAL EFFLUENT TOTAL	FINAL EFFLUENT PER CENT FIXED OF TOTAL	SUSPENDED SOLIDS (PPM) RAW TOTAL	RAW PER CENT FIXED OF TOTAL	PRIMARY EFFLUENT TOTAL	PRIMARY EFFLUENT PER CENT FIXED OF TOTAL	FINAL EFFLUENT TOTAL	FINAL EFFLUENT PER CENT FIXED OF TOTAL
53	54	55	56	57	58	59	60	61	62	63	64	65
01	665	46	575	90	435	-	140	17	82	0	30	17
06	615	-	482	84	561	85	176	6	102	0	29	0
13	716	65	581	-	477	95	230	20	108	25	15	13
15	719	60	570	70	436	90	184	15	81	21	7	29
20	696	59	588	67	456	81	188	29	111	24	6	83
22	654	66	573	72	409	-	196	14	88	20	2	50
27	745	53	634	61	487	65	232	16	111	20	8	38
29	797	62	651	71	482	-	318	26	121	30	6	17
AVE	702			66	445	83	206	18	101	16	13	31

DRYING BEDS DATE DRAWN	VOLUME 1000 GAL. DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV FROM BEDS	% SOLIDS	DRYING TIME (DAYS)	pH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
05	9.4	1.3	46	24		19	
09	14.9			24		15	6.9
15	10.1	2.2	62	30	92	15	7.4
16	10.8			30		14	7.3
18	27.4	1.3	65	24		06	
24	40.4	3.1	65	19M		25	6.9

DIGESTION DATE	ALKALINITY M.O.	% TOTAL SOLIDS	% VOL. OF T.S.
74	75	76	77
02		1.6	34
13		1.96	65
16		1.87	69
20		1.2	63
23		1.5	61
28		1.6	62
30		1.1	64
AVE		1.5	59

NUTRIENT FINAL EFF. DATE	PHOSPHATE	NITRATE
78	79	80
	NOT	
	RUN	
	AS	
	YET	

MPN OR MF DATE	SECOND'Y EFFLUENT	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
05	16M	20	330	1700
20	220T	20	2400	330
26	790T	78	740	330
FECAL				
05	3.5M	18-	95	190
20	49T	18-	40	130
26	190T	18-	95	78

GENERAL NOTES:

Monthly ave. sewage flow (Col. 7 0.83

Show all routine analyses as follows:

(a) Sample composited over 12 hours; (from 8 A.M to 8 P.M.).

(b) Number of samples collected to form one composite sample: 12.

(c) Time interval between sample collections 1 hrs.

(d) Size of each sample used to form one composite sample 285 ml. LARGEST 90 ml. SMALLEST

R.A.S. DATE	MLTSS	% VOL. OF MLTSS	S.V.I.
87	88 89	90	91
01	1472		156
06	3172	71	242
09	1456		575
12	2160		162
15	1928	68	119
20	2816	72	8
23	1884	72	133
26	1376	66	8
28	2240	69	214
30	2504	67	129
AVE	2100	69	215

RECEIVING WATER 5 DAY BOD DATE	DOWN STREAM	UP STREAM
92	93	94
15	9.0	2.5

RAW SLUDGE DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
06	REDUNDANT	0.56	14	86
13		2.0	26	74
16		1.2	22	78
20		1.6	25	75
23		1.6	27	73
28		1.1	29	71
AVE		1.4	24	76

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUTFALL NOT CALCULATED FEET/SECOND.
101. DILUTION FACTOR NOT CALCULATED
102. VISUAL STREAM CONDITIONS ALGAE BLOOM; FAIR/GOOD
103 Classification of Water I, II, III, IV CLASS III

(SECTION C)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Post Office Box 210 Jacksonville, Florida 32201

SOUTH MIAMI HEIGHTS
PUBLIC UTILITY CORP.

TEL. CEDAR 8-2524
2525
2526

11450 S.W. 187TH STREET
SOUTH MIAMI HEIGHTS
PERRINE, FLORIDA

MAILING ADDRESS
P. O. BOX 250, PERRINE, FLA.

OPERATION REPORT FOR WASTE TREATMENT FACILITIES
STATE OF FLORIDA, D.H. & R.S., D OR H., B. OF S.E.
SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.-S.N. 1654
ADDENDUM: APRIL 1971

DURING THE EARLY PART OF THE MONTH,THE PLANT, AS CONVERTED TO CONTACT STABILIZATION AS PER REPORTED IN THE MARCH 1971 REPORT, WAS OPERATED WITH THE CLOSE COOPERATION OF DADE COUNTY POLLUTION CONTROL DEPT. AUTHORITIES. IN ORDER TO OPTIMIZE THE PROCESS THE INSYSTEM M.L.S.S. WERE ALLOWED TO ACCUMMULATE; NO WASTING OF R.A.S. WAS EFFECTED. A PRECALCULATED CONTACT/STABILIZATION M.L.T.S.S. CONCENTRATION OF 900-1100/1400-1600, REPECTIVELY, WAS PROPOSED BY THE OPERATING PERSONNEL; BUT, THIS WAS NOT QUITE BELIEVED BY OTHERS. AS REFLECTED IN THE DATA REPORTED, WHEN THE SYSTEM ACCRUED M.L.S.S. HIGHER THAN THESE CONCENTRATIONS, THE EFFLUENT GRADUALLY DETERIORATED. AFTER WASTING OF R.A.S. WAS COMMENCED, AND THE C.S. SYSTEM CONCENTRATIONS APPROACHED THE PRE-ESTIMATED LEVELS, THE EXPECTED EFFICIENCIES WERE REALYZED. THIS PROVED TO BE A VERY WORTHWHILE TEST.

DURING THE LATTER PART OF THE MONTH, DATA COLLECTED INDICATED EQUIPMENT SPECIFICATION FAILURE IN THE AEROBIC DIGESTION UNITS. STRATIFICATION TESTS WERE COMMENCED IMMEDIATELY DURING THE FIRST WEEK OF MAY; THE RESULTS WILL BE REPORTED IN THE MAY REPORT. IT MIGHT BE NOTED AT THIS TIME THAT THE TESTING DID ANALYZE POSITIVE. THE VANGUARD INDICATIONS WERE: (1) MOTOR STARTER CONTACT CHATTER WHEN UNIT #2 LEVEL WAS DROPPED TO BELOW NORMAL SUPERNATION LEVELS DURING SLUDGE WITHDRAWAL. (2) HEAVY BOTTOM DRAW-OFF SLUDGE CONCENTRATIONS, DIFFERING FROM THE ROUTINE DIGESTOR ANALYSIS TAKEN FROM APPROXIMATELY 04 FT UNDER THE LIQUID LEVEL; EVEN THOUGH THE AERATOR UNIT WAS NOT SHUT DOWN FOR THE PREVIOUS 24 HOURS. (3) ODOROUS BOTTOM SLUDGE WITHDRAWAL, WITH HIGH % VOLATILE SOLID CONTENT, DARK COLOR, AND POOR DRAINAGE AND DEWATERING CHARACTERISTICS. (4) VERY STRONG ODOR, WITH LONGER DURATION TIME AFTER AERATOR START-UP AFTER SUPERNATION. (5) SUPERNATE DEVELOPED A BAD ODOR, NOT EXPECTED WITH THE RELATIVELY SHORT AIR-OFF TIME.

Gary L. Mishoe

GARY L. MISHOE, C.O.
SUPERINTENDENT
WASTEWATER TREATMENT

SEWAGE TREATMENT OPERATION REPORT

DAWPC
PERMIT NO. ______

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
Name of City, Subdivision, District, Trailer Park, etc.

Mailing Address: P.O. BOX 250, PERRINE, FL, 33157
(City or Utility Company)

MARCH 1971 DADE
Month year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHOE	SUPT.	A
JESSE A. MONEY	OPR./LAB	
JOHN R. TARIBO	OPR./LAB	
SILAS BUSH	MECH/P.T.O.	
ALLEN K. PLEDGER	ASST. OPR.	

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	47
Population Served	12,400
Equivalent Pop. (Hydraulic load)	8,300
Equivalent Pop. (Biological load)	9,600
Number of Active Connections	3,049

Specific type of Treatment provided by this Plant:
CONVENTIONAL ACTIVATED SLUDGE
W/ AEROBIC DIGESTION

Please forward this report through your county or regional engineer by the 15th of each following month to:

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks: ______

Central Office Remarks: ______

(SECTION A)

THE DAILY REPORT

Plant Approval Number: 24 AUG 55; S.N. 1654

Date	Weather		Sewage						Chlorination					Settleable Solids			Sludge					
				Flow MGD					Pre		Post		5 MIN.									
Date	Rainfall	Temp °F	Temp °F	Max	Min	Total	Bypass	Grit&Screening Cu. Ft.	Pounds	PPM	Pounds	PPM	Residual PPM	Raw	Primary Effluent	Final Effluent	Fresh Sludge Added to Digester (1000 Gals)	WASTE R.A.S. THRU PRI. S	Digester UNIT 2 D.O.	PH Primary Sludge	PH Supernatant	Supernatant WASTED (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0	76	76				0		0	0			0.7	14.0	2.0	-0.1	18.0	No		6.6	7.6	14.4
2		82	80	FLOW METER OUT OF SERVICE SEE FEB. MONTHLY REPORT				PLANT EQUIPPED W/ COMMINUTION; NO DEGRITTOR			ESTIMATE; NO WEIGHING FACILITY FOR TON CYLINDERS	NOT CALCULATED; SEE COLUMN 12	2.0	15.0	0.2	0.1	17.3	YES		6.8	7.7	16.0
3		80	80										2.0	14.0	2.1	-0.1	7.9	YES		6.8	7.7	17.3
4		54	77										1.4	9.5	1.4	0.1	11.5	YES	6.0	6.7	7.6	7.9
5		54	78										2.0	12.0	1.7	-0.1	10.8	No	8.0	6.7	7.5	11.5
6		78	78										2.0			0.1	10.8	YES		6.8	7.8	10.8
7		80	76										2.0			-0.1	7.2	No				10.8
8		59	78										2.0	18.0	0.5	0.1	10.8	No	9.3	6.7	7.7	7.2
9		62	78										1.5	10.0	2.0	0.1	13.6	YES	10.0	6.6	7.5	10.8
10		72	79	1.4	0.1	0.81							2.0	17.0	2.0	0.1	11.5	No		6.6	7.7	13.6
11		78	79	1.6	0.1	0.81							1.4	12.0	0.7	0.1	17.2	YES	8.2	6.6	7.5	11.5
12		89	79	1.4	0.0	0.80							1.7	11.0	0.1	0.2	20.8	YES	6.8	6.8	7.5	17.2
13		78	78	2.0	0.0	0.87							2.0			0.1	16.5	YES		6.8	7.7	20.8
14	0.1	82	78	1.8		0.85							2.0			-0.1	14.4	No		6.5	7.5	16.5
15	0	80	78	1.8		0.91							2.0	9.0	-0.1	0.1	7.9	YES	5.5	6.6	7.5	14.4
16	-0.1	84	83	1.6		0.77							1.4	13.0	0.3	0.1	18.0	YES	6.1	6.7	7.5	7.9
17	0	66	76	1.3		0.81							2.0+	14.0	0.5	0.1	10.8	Yes	7.1	6.6	7.7	18.0
18		74	78	2.1		0.82							2.0+	18.0	0.5	0.1	15.8	YES	10.0	6.7	7.5	10.8
19		72	79	1.7		0.83							2.0	7.0	0.1	-0.1	25.9	YES	6.0	6.6	7.5	15.8
20		68	79	1.9		0.83							1.4			0.1	8.6	No		6.7	7.5	25.9
21		62	75	1.9	0.1	0.85							1.4			0.1	10.8	YES		6.8	7.4	8.6
22		74	79	1.8	0.0	0.92							2.0	13.0	0.2	-0.1	10.8	No	6.5	6.8	7.4	10.8
23		82	79	1.4		0.85							2.0	13.0	0.6	-0.1	16.5	YES	6.4	6.7	7.6	10.8
24		80	78	1.8		0.67							2.0+	16.0	0.4	-0.1	13.6	YES	6.0	6.8	7.5	16.5
25		82	79	1.7		0.91							1.5	13.0	0.5	0.1	16.5	YES	6.1	6.7	7.5	13.6
26		80	79	2.1		0.79							2.0	12.0	0.1	0.1	17.2	Yes	1.5	6.7	7.0	16.5
27		78	79	1.8		0.81							0.7			0.1	12.3	YES		6.6	7.4	17.2
28		82	78	1.4		0.84							2.0			-0.1	9.3	YES		6.7		0
29		80	NR	1.3		0.91							2.0				6.2	No		6.7		0
30	0.2	76	77	1.7		0.81							2.0+	15.0	0.1	0.1	15.1	YES	8.9	6.7		0
31	0	60	77	2.0		0.78							1.0	13.0	1.2	-0.1	12.3	YES	8.1	6.7	7.1	12.3
Tot	0.3					18.3+	0		0	0							416					387
Avg	NIL	76	78	1.7	0.0	0.83	0		0	0	135			13±	0.8±	0.1±	13.4		7.0	6.7	7.5	13.8

38. Treatment Costs:

Labor:

Power:

Chemicals:

Misc:

Total:

39. Conditions at and below Outfall CONSIDERABLE ALGAE; MODERATE BOT. GROWTH

40. How is waste flow determined? FOXBORO EFFLUENT METER W/ 90° VEE WEIR

41. How is dry or digested sludge disposed? LAND FILL

42. Sludge Gas Produced NOT APPLICABLE cubic feet

Utilized NOT APPLICABLE cubic feet

43. Industrial Waste problems NIL

(SECTION B)

NOTE: % R.A.S. RECIRC. = $\left[\dfrac{\text{AERATOR M.L.T.S.S.}}{(\text{R.A.S. M.L.T.S.S.}) - (\text{AERATOR M.L.T.S.S.})}\right](100)$

R.A.S.

Dissolved Oxygen					pH			Recirculation				Activated Sludge						
												Aerators			R.A.S.			
Ri	Secondary Effluent	Pond (Sour Canal)	Downstream	Upstream	Raw	Primary Effluent	Final Effluent	Settleable Solids % 30 Minutes	Return Sludge (Act. Sludge)	Air Supplied	Settleable Solids % 30 Minutes (Average)	M.L.T.S.S. (Ave)	% Vol.	S.V.I.	M.L.T.S.S.	% Vol.	S.V.I.	Date
24	25	26	27	28	29	30	31	32	33	34	35	36	a	b	c	d	e	37
0.0	1.9	3.0			7.4	7.4	6.8	21	185	2.70	13	925	72	141	1420	70	148	1
0.0	2.1	7.5			7.4	7.4	7.0	31	102		13	1005	75	129	1995	76	170	2
0.0	2.0	5.7			7.5	7.5	7.0	27	116		14	925	73	151	1725	69	157	3
0.0	2.0	2.8			7.4	7.4	7.0	23	231		17	480	81	174	1405	83	164	4
0.1	2.0	2.6			7.7	7.5	6.6	32	166		20	1055	74	190	1690	78	189	5
								40	127		17	1280		133	2290		175	6
								39	190		19	1335		142	2240		170	7
0.0	2.2	3.0			7.7	7.6	6.9	55	130		23	1350	77	170	2390	77	230	8
0.0	2.2	4.1			7.5	7.5	6.8	30	202		20	1350	76	148	2020	76	149	9
0.0	1.9	5.0			7.5	7.5	6.8	31	147		17	1090	76	151	1830	75	169	10
0.0	1.7	4.5	5.0	7.0	7.3	7.3	7.4	18			15	1000	80	150	1160	71	164	11
0.0	1.8	2.5			7.9	7.5	6.8	26	157		14	1115	67	125	1625	69	142	12
								35	81		17	730		233	1635		214	13
								31			18	1495		124	1620		170	14
0.1	1.8	2.5			7.4	7.4	7.2	38	138		18	1080	77	167	1665	78	201	15
0.1	2.0	3.5			7.4	7.4	7.1	34	132	2.41	18	1000	75	180	1755	80	194	16
0	2.0	4.1			7.5	7.5	7.0	26	272	2.00	21	1130	75	186	1515	75	168	17
0.0	2.5	8.6	8.9	16+	7.4	7.4	7.0	50	112	2.20	18	1290	69	140	2410	67	205	18
0.0	1.5	3.0			7.5	7.6	7.1	31	114	1.62	15	1080	66	139	2030	84	153	19
								51	104		23	1390		165	2730		187	20
								84	64		18	1260		191	3285		256	21
0.1	1.8	3.0			7.7	7.8	7.5	56	88		16	1565	57	102	3345		167	22
0.0	2.4	7.0			7.5	7.4	8.3	27	105		13	1605	46	81	3130	47	86	23
0.1	1.8	5.0			7.7	7.7	7.1	31	137		16	1835	58	87	3170	56	98	24
0.1	1.8	4.5	10.0	8.0	7.6	7.6	7.2	40	190		19	1780	61	107	2715	53	197	25
0.1	1.8	3.5			7.9	7.7	7.4	65	69		18	1305		138	2775		234	26
								55	105	2.19	20	1550		129	3020		162	27
								33	165	1.62	19	1340		130	2150		153	28
								52	117	1.62	29	1540		187	2850		183	29
0.3	2.6	7.6			7.5	7.5	7.2	63	80	1.82	21	1315	67	160	2950	65	214	30
0.1	2.1	7.7			7.4	7.4	7.1	13	128	2.04	19	870		219	932		190	31
										69.3								Tot
-0.1	2.0	4.6	8.0	10.0	7.5	7.5	7.1	39	136	2.24	18	1220	70	147	2240	71	174	Avg

44. General Comments, Operating problems or assistance desired

SEE ATTACHED
ADDENDUM

NOTE MODIFICATIONS
TO COLUMN HEADINGS

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH ACTUAL FINDINGS.

Class A, 1968
Operator and Certificate

(SECTION Ba)

DAWPC PERMIT NO.______ROUTINE ANALYSIS

COUNTY Dade

NAME AND ADDRESS South Miami Heights Public Utility Corp.
P.O. Box 250, Perrine, FL. 33157

DATE	5 DAY BOD (PPM)						
	RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
02	255	275	-08	15	94	NOT APPLICABLE	NOT APPLICABLE
04	225	255	-13	23	90		
09	225	290	-29	30	87		
11	230	225	02	38	83		
16	220	193	12	29	87		
18	280	216	23	40	86		
23	215	190	12	28	87		
AVE	236	235	<01	29	88		

DATE	TOTAL SOLIDS (PPM)						SUSPENDED SOLIDS (PPM)					
	RAW		PRIMARY EFFLUENT		FINAL EFFLUENT		RAW		PRIMARY EFFLUENT		FINAL EFFLUENT	
	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL	TOTAL	PER CENT FIXED OF TOTAL
53	54	55	56	57	58	59	60	61	62	63	64	65
02	605	45	479	53	382	79	238	40	100	26	11	9
04	591	62	498	61	380	88	174	33	109	23	8	25
09	695	54	510	66	393	88	186	01	63	0	17	0
11	630	62	527	69	434	86	254	12	166	18	28	11
16	670	59	550	65	433	86	166	16	78	13	23	17
18	760	52	695	59	468	80	224	29	172	14	19	16
23	754	63	697	68	519	89	192	16	124	21	22	27
25	697	60	586	65	439	85						
AVE							205	21	115	16	18	15

DRYING BEDS							
DATE DRAWN	VOLUME DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV FROM BEDS	% SOLIDS	DRYING TIME (DAYS)	pH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
28	15,140	1.9	65	A11		14	6.6
29	19,910	1.9	65	A5		07	6.6

DIGESTION			
DATE	ALKALINITY M.O.	% TOTAL SOLIDS	% VOL. OF TOTAL SOLS
74	75	76	77
04		0.30	60
09		0.35	78
11		0.41	68
12	238	0.51	76
16	214	0.72	66
19		0.92	65
23		1.24	66
26	285	1.71	67

NUTRIENT FINAL EFF.		
DATE	PHOSPHATE	NITRATE
78	79	80
NOT RUN		
AT THIS		
TIME		

MPN OR MF				
DATE	SECONDARY EFFLUENT	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
01	160+	130	330	490
08	160+	1300	330	790
FECAL COLIFORM				
01	59+	79	49	79
08	92+	330	20	78

86.
GENERAL NOTES: 0.83
Monthly ave. sewage flow (Col. 7____

Show all routine analyses as follows:

(a) Sample composited over 14 hours; (from 8 A.M to 10 P.M.).

(b) Number of samples collected to form one composite Sample: 14.

(c) Time interval between sample collections 1.0 hrs.

(d) Size of each sample used to form one composite sample 150 to 350 ml.

SUSPENDED SOLIDS PPM				
DATE	AERATOR (MLSS)		REAIR OR RETURN SLUDGE	
	TOT	FIX	TOT	FIX
87	88	89	90	91
SEE SECTION				
8a, COLUMN				
36, FOR A				
DAILY				
REPORTING				

RECEIVING WATER 5 DAY BOD		
DATE	DOWN STREAM	UP STREAM
92	93	94
04	2	2
11	-2	-2
18	5	1>

RAW SLUDGE				
DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
01	REDUNDANT	1.12	35	65
04		2.12	19	81
09		1.70	22	78
12		1.20	24	76
16		1.57	22	78
19		1.03	32	68
23		2.83	43	57
26		2.00		
30		2.20	30	70
AVE		1.75	28	72

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUT-FALL NOT CALCULATED CUBIC FEET/SECOND.
101. DILUTION FACTOR NOT CALCULATED
102. VISUAL STREAM CONDITIONS FAIR TO GOOD
103. Classification of Water I, II, III, IV CLASS III

(SECTION C)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Post Office Box 210 Jacksonville, Florida 32201

SOUTH MIAMI HEIGHTS
PUBLIC UTILITY CORP.

TEL. CEDAR 5-2534
2535
2536

11450 S. W. 187TH STREET
SOUTH MIAMI HEIGHTS
PERRINE, FLORIDA

MAILING ADDRESS
P. O. BOX 350, PERRINE, FLA.

Operation Report for Waste Treatment Facilities
State of Florida, D.H.R.S., D.H., B.S.E.
South Miami Heights Public Utilities - S.N. 1654
Addendum: March 1971

During mid-February the aerobic digestors conversion/construction was completed and the system was put in operation. Simultaneously the temporary sludge handling operation was terminated. This consisted of contract hauling of primary sludge to the City of Miami waste-water treatment facility, and the use of aerator no.#1 as an aerobic digestor for waste activated sludge.

The return to the C.A.S. flow diagram of wasting W.A.S. to the primary clarifiess during daytime flows resulted in a gradual deterioration of effluent quality as reflected in the routine weekly analysis. On the ninth, the wasting period was changed to night time (low) flows. This practice was hereto-fore not used because of an undesirable experience with odors during an emergency sludge wasting operation duringnight time flows in early January. In any event, it resulted in no undesirable odor production at this time; probably due to more frequent pumping of primary sludge. Consequently this procedure was continued S.O.P. on the 14th; and, daytime wasting of W.A.S. was terminated for all routine purposes.

Even with this change, effluent quality still did not materially improve, and had to be augmented considerably with hydrated lime. Consequently we continued to research methods to improve our system.

During the week of 21 thru 27, the superintendent attended the Gainesville Short School. After a week of classes and numerous out-of-class discussions it was concluded that process conversion to contract stabilization would be tried, if approval could be obtained from D.C.P.C. Fortuneately this could be effected by installing two plywood channel stopgates and two wood flow directional baffles.

On the 29th after extensive staff and management discussion, and process calculations, the concept was presented verbally to D.C.P.C. officials. After considerable exchange of ideas, temporary approval was granted. At 17:30, 30 March 1971 the temporary modifications were completed and the facility commenced contact stabilization process operation.

As of the date of this writing, the modification looks quite promising, and we are working in close cooperation with D.C.P.C. personnel to improve and optimize the operation.

Gary L. Mishoe

Gary L. Mishoe, C.O.
Superintendent
Waste-water Plant

SOUTH MIAMI HEIGHTS
PUBLIC UTILITY CORP.

TEL. CEDAR 5-2534
2535
2536

11480 S. W. 187TH STREET
SOUTH MIAMI HEIGHTS
PERRINE, FLORIDA

MAILING ADDRESS
P. O. BOX 280, PERRINE, FLA.

WASTEWATER TREATMENT PLANT

PERCENTAGE EFFICIENCY REPORT FOR: SETTLEABLE SOLIDS; BIO-CHEMICAL OXYGEN DEMAND; TOTAL SUSPENDED SOLIDS; TOTAL VOLATILE SUSPENDED SOLIDS.

FEBRUARY, 1971

(1) SETTLEABLE SOLIDS:

DATE	RAW ML/L	FINAL ML/L	O/O REMOVAL
01	19	- 0.1	99+
02	11	- 0.1	99+
03	14	- 0.1	99+
04	10	- 0.1	99+
05	18	- 0.1	99+
08	10	- 0.1	99+
09	11	- 0.1	99+
10	10	- 0.1	99+
11	20	- 0.1	99+
12	12	- 0.1	99+

DATE	RAW ML/L	FINAL ML/L	O/O REMOVAL
16	14	- 0.1	99+
17	18	- 0.1	99+
18	10	- 0.1	99+
19	9	- 0.1	98+
22	12	- 0.1	99+
23	8.5	- 0.1	98+
24	8	- 0.1	98+
25	12	- 0.1	99+
26	13	- 0.1	99+
AVE	13	- 0.1	99+

NOTE: NEGATIVE MARK INDICATES "LESS THAN", POSITIVE MARK INDICATES "GREATER THAN"

(2) BIO-CHEMICAL OXYGEN DEMAND:

DATE	RAW MG/L	FINAL MG/L	O/O REMOVAL
02	280	7.5	98
04	173	6	97
09	250	8	97
11	200	12	94
16	200	28	86
23	182	15	92
AVE	214	13	94

(3) TOTAL SUSPENDED SOLIDS:

DATE	RAW MG/L	FINAL MG/L	O/O REMOVAL
02	176	4.5	97
04	256	6	98
09	204	6	97
11	172	8.5	95
16	220	8.5	96
23	216	4	98
AVE	207	6	97

(4) TOTAL VOLATILE SUSPENDED SOLIDS:

DATE	RAW MG/L	FINAL MG/L	O/O REMOVAL
02	146	3	98
04	196	5	97
09	174	4.5	97
11	148	8.5	94
16	178	6	97
23	194	4	98
AVE	173	5	97

SEWAGE TREATMENT OPERATION REPORT DAWPC

PERMIT NO.

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
Name of City, Subdivision, District, Trailer Park, etc.

Mailing Address: P.O. BOX 250, PERRINE, FL. 33157
(City or Utility Company)

FEBRUARY 1971 DADE
Month year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHCE	SUPT.	A
JESSE A. MONEY	OPR./LAB	
JOHN R. TARIBO	OPR./LAB	
SILAS BUSH	MECH/P.T.C.	
ALLEN K. PLEDGER	OPR. ASST.	

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	57①
Population Served	12,100
Equivalent Pop. (Hydraulic load)	10,000①
Equivalent Pop. (Biological load)	10,500①
Number of [redacted] Connections	3,001

Specific type of Treatment provided by this Plant:
CONVENTIONAL ACTIVATED SLUDGE W/ AEROBIC DIGESTION

Please forward this report through your county or regional engineer by the 15th of each following month to:

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks:

① BASED ON ESTIMATED FLOW; SEE SECTION B, COLUMNS 5-7.

Central Office Remarks:

(SECTION A)

THE DAILY REPORT

Plant Approval Number: 24 AUG 55; 1654

Date	Weather		Sewage						Chlorination					Settleable Solids			Sludge					
	Rainfall	Temp °F	Temp °F	Flow MGD				Grit&Screening Cu. Ft.	Pre		Post		Residual PPM	Raw	Primary Effluent	Final Effluent	Fresh Sludge Added to Digestor (1000 Gals)	Excess Sludge (Act. Sludge)	Digester D.O. (Unit #2)	pH Primary Sludge	pH Supernatant	Supernatant Wasted (1000 Gals)
				Max	Min	Total	Bypass		Pounds	PPM	Pounds	PPM										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0	84	80				0		0	0			2.0+	19	0.5	-0.1	6.2					
2		76	78	FLOW METER STILL OUT-OF-ORDER; PARTS ARE ON ORDER THEN BOB JEFFERS, JEFFERS INSTRUMENT CO.				PLANT EQUIPPED W/BARMINUTOR; NO DEGRITTER			NO SCALES INSTALLED W/ TON FACILITY; ESTIMATIONS WILL BE FORTH-COMING		0.5	11	0.5	-0.1						
3		80	80										1.0	14	0.3	-0.1	SEE Col. 20-3					
4		80	80										0.8	10	0.4	-0.1						
5		80	80										0.8	18	-0.1	-0.1			DIGESTORS BEING CONVERTED TO AEROBIC TYPE; SLUDGE BEING HAULED TO CITY OF MIAMI PLANT.			
6		78	79										0.5			-0.1						
7		80	80										2.0+			-0.1		NO METERING EQUIPMENT				
8	0.5	80	78										2.0	10	0.1	-0.1	6.2					
9	0	70	79										1.0	11	1.0	-0.1	12.4					
10		43	78										1.0	10	1.2	-0.1	12.4					
11		46	78										1.0	20	0.5	-0.1	12.4					
12	0.9	59	78										0.5	12	-0.1	-0.1	6.2					
13	0	72	79										1.4			-0.1						
14		64	78										1.4			-0.1						
15													1.4									
16		60	79										1.4	14	2.0	-0.1	6.2					
17		62	79										1.4	18	0.2	-0.1	24.5		9.8	N.R.	N.R.	15.9
18	0.1	68	79										0.8	10	0.2	-0.1	20.6		N.R.	6.6	8.2	24.5
19	0	80	78										2.0	9	-0.1	-0.1	16.6			6.7	7.9	20.8
20		82	79										1.4			-0.1	22.3			6.8	7.9	16.6
21		85											2.0			-0.1	14.4			N.R.	7.8	22.3
22	0.1	80	80										1.4	12	0.3	-0.1	11.5			6.7	7.8	19.4
23	0.1	80	78										2.0	9	0.8	-0.1	16.6			6.5	7.8	11.5
24	0	68											2.0	8	0.1	-0.1	10.1			6.5	7.9	16.6
25		80	79										1.4	12	1.5	-0.1	12.3			6.7	7.7	10.1
26		76	78										2.0	13	-0.1	-0.1	18.7		7.6	6.7	7.8	12.3
27		82	80										1.4			-0.1	13.7		N.R.	6.6	7.8	18.7
28		84											2.0			-0.1	19.4		N.R.	6.7	7.5	13.7
29																	FROM 17TH					
30																						
31																						
Tot	1.7						0		0	0							196					197
Avg	.06	74	79				0		0	0			1.4	13	0.5	-0.1	16.3		8.7	6.6	7.8	16.4

38. Treatment Costs:

Labor:

Power:

Chemicals:

Misc:

Total:

39. Conditions at and below Outfall MOD. ALGAE; MOD. ROT. WEEDS

40. How is waste flow determined? FOXBORO FLOW METER W/ 90° VEE WIER

41. How is dry or digested sludge disposed? LAND FILL

42. Sludge Gas Produced NOT APPLICABLE cubic feet

Utilized NOT APPLICABLE cubic feet

43. Industrial Waste problems NIL

(SECTION B)

Dissolved Oxygen					pH			Recirculation					
Rs '	Secondary Effluent	Pond & Final Eff.	Downstream	Upstream	Raw	Primary Effluent	Final Effluent	To Trickling Filter	Return Sludge (Act. Sludge)	Air Supplied	Settleable Solids % 30 Minutes AVERAGE	Remarks	Date
24	25	26	27	28	29	30	31	32	33	34	35	36	37
0.2	1.5	2.1	NOT RUN THIS MONTH		7.7	7.3	7.0	NOT APPLICABLE	NO METERING EQUIPMENT	2.7	21		1
0.2	1.8	2.4			7.4	7.4	7.0				15		2
0.1	2.0	4.0			7.5	7.5	7.0				20		3
0.1	1.8	3.5			7.5	7.5	7.0				18		4
0.1	1.7	2.7			7.3	7.3	7.0				23		5
											28		6
											20		⑦
0.2	1.8	2.5			7.3	7.3	7.1				21		8
0.2	1.8	2.5			7.3	7.3	7.2				30		9
0.1	1.9	2.6			7.3	7.3	7.0				20		10
0.1	1.7	2.3			7.4	7.4	7.0				19		11
0.1	1.7	2.3			7.7	7.4	7.0				16		12
											18		13
											23		⑭
													15
0.1	1.8	2.4			7.6	7.5	7.0				25		16
0.	2.0	3.0			7.5	7.5	7.0				20		17
0.1	2.1	2.5			7.4	7.3	7.0				20		18
0.1	2.0	2.6			7.6	7.5	7.0				21		19
											14		20
											14		㉑
0.1	1.9				7.6	7.5	7.0				22		22
0.1	2.0	5.0			7.6	7.5	7.0				22		23
0.1	1.9	2.5			7.4	7.4	7.3				24		24
0.1	1.8	2.0			7.5	7.5	7.1				27		25
0.0	1.8	3.0			7.5	7.5	6.8				23		26
											15		27
										2.7	17		㉘
													29
													30
													31
										75.6			Tot
0.1	1.8	2.8			7.5	7.4	7.0			2.7	21		Avg

44. General Comments, Operating problems or assistance desired

RE: 18 + 23 - NEW AEROBIC DIGESTORS IN FULL OPERATION; HAULING OF SLUDGE STOPPED. GO ON 17th.

RE: 7 - ESTIMATED A.D.F. IS 1.0 M.G.D.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH ACTUAL FINDINGS.

Class A-

Operator and Certificate 1968

(SECTION 8a)

DAWPC PERMIT NO.______ROUTINE ANALYSIS

COUNTY DADE NAME AND ADDRESS SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP. + WASTEWATER PLANT, 20820 S.W. 117 AV, PERRINE

DATE	5 DAY BOD (PPM) RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
02	280	175	38	7.5	98	NOT APPLICABLE	NOT APPLICABLE
04	175	140	13	6	97		
09	250	170	32	8	97		
11	200	143	28	12	94		
16	200	225	-13	28	86		
23	182	136	25	15	92		
AVE	214	165	23	13	94		

DATE	TOTAL SOLIDS (PPM) RAW TOTAL	RAW FIXED	PRIMARY EFFLUENT TOTAL	PRIMARY EFFLUENT FIXED	FINAL EFFLUENT TOTAL	FINAL EFFLUENT FIXED	SUSPENDED SOLIDS (PPM) RAW TOTAL	RAW FIXED	PRIMARY EFFLUENT TOTAL	PRIMARY EFFLUENT FIXED	FINAL EFFLUENT TOTAL	FINAL EFFLUENT FIXED
53	54	55	56	57	58	59	60	61	62	63	64	65
02	540	310	475	330	285	265	175	20	110	20	5	2
04	680	300	550	340	340	350	255	60	140	40	6	1
09	730	475	520	410	430	405	205	30	115	20	6	2
11	680	310	540	330	460	355	170	25	100	30	9	NIL
16	630	335	530	340	420	345	220	40	90	25	9	3
23	650	315	530	360	310	355	215	20	120	4	9	NIL
AVE	650	375	535	340	390	345	205	35	110	25	7	1

DRYING BEDS DATE DRAWN	VOLUME DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV FROM BEDS	% SOLIDS	DRYING TIME (DAYS)	pH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
NO SLUDGE DRAWN							
FROM NEW SYSTEM							

DIGESTION DATE	ALKALINITY M.O.	VOLATILE ACIDS	PH
74	75	76	77
NOT			
APPLICABLE			
AS SUCH			

NUTRIENT FINAL EFF. DATE	PHOSPHATE	NITRATE
78	79	80
NOT		
RUN		

MPN OR MF DATE	RAW	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
ANALYSIS				
COMMENCE				
NEXT				
MONTH				

86.
GENERAL NOTES:

Monthly ave. sewage flow (Col. 7 1.0

Show all routine analyses as follows:

(a) Sample composited over 14 hours; (from 08 A.M to 10 P.M.).

(b) Number of samples collected to form one composite sample: 14.

(c) Time interval between sample collections 01 hrs.

(d) Size of each sample used to form one composite sample PROPORTIONAL TO FLOW ml. 145-320 ML.

DATE	SUSPENDED SOLIDS PPM AERATOR (MLSS) TOT	AERATOR (MLSS) FIX	REAIR OR RETURN SLUDGE TOT	REAIR OR RETURN SLUDGE FIX
87	88	89	90	91
01	1340	435	3060	970
04	1180	295	2955	800
07	1340		2460	
10	1325		1535	
13	1670		3250	
18	1360	455	2250	745
19	1465	490	2060	710
22	1130	315	2705	640
25	1295	280	2310	550
28	1120		1455	
AVE	1320	360	2450	735

RECEIVING WATER 5 DAY BOD DATE	DOWN STREAM	UP STREAM
92	93	94
NOT		
RUN		
THIS		
MONTH		

RAW SLUDGE DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
18	REDUNDANT	1.35	.31	69
22		1.74	.33	67
25		0.66	11	89
Ave		1.25	25	75

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUTFALL 0 (THIS MO.) CUBIC FEET/SECOND.

101. DILUTION FACTOR 1:0.

102. VISUAL STREAM CONDITIONS ALGAE; GAME FISH EVID'NT.

103 Classification of Water I. II. [✓ III] IV III

(SECTION C)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Post Office Box 210 Jacksonville, Florida 32201

SEWAGE TREATMENT OPERATION REPORT

D A W P C
PERMIT NO. ______

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
Name of City, Subdivision, District, Trailer Park, etc.

Mailing Address: P.O. BOX 250, PERRINE, 33157
(City or Utility Company)

JANUARY 1971 DADE
Month year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHOE	SUPT.	A
JESSE A. MONEY	LAB/OPR.	NONE
JOHN R. TARIBO	LAB/OPR.	NONE
SILAS BUSH	MECH/P.T.O.	NONE
ALLAN K. PLEDGER	OPR. ASST.	NONE

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	57
Population Served	12,100
Equivalent Pop. (Hydraulic load)	10,000
Equivalent Pop. (Biological load)	9,350
Number of [redacted] Connections	3001

Specific type of Treatment provided by this Plant:
CONVENTIONAL ACTIVATED SLUDGE W/ AEROBIC DIGESTION

Please forward this report through your county or regional engineer by the 15th of each following month to:

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks: ______

Central Office Remarks: ______

(SECTION A)

THE DAILY REPORT

Plant Approval Number:

Date	Weather		Sewage						Chlorination					Settleable Solids			Sludge					
				Flow MGD					Pre		Post											
	Rainfall	Temp °F	Temp °F	Max	Min	Total	Bypass	Grit/Screening Cu. Ft.	Pounds	PPM	Pounds	PPM	Residual PPM	Raw	Primary Effluent	Final Effluent	Fresh Sludge Added to Digester (1000 Gals)	Excess Sludge (Act. Sludge)	Digester Temp. °F	pH Primary Sludge	pH Supernatant	Supernatant Wasted (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	NO	80	79				0		0	0	80		2.0	8.0	0.2	-0.1	12.4					
2	NO	76	78					PLANT EQUIPPED W/BARMINUTER; NO GRITTER			70	NOT CALCULATED SEE REMARKS REF: 2	1.4	9.0	0.1	-0.1	6.2	NO METERING EQUIPT. AT THIS TIME	NOT APPLICABLE SEE REMARKS REF: 18			
3	NO										70		2.0				12.4			NOT RUN - SLUDGE TANKED OFF		
4	NO	80	78	FLOW METER STILL OUT OF	SERVICE; PARTS ARE ON ORDER	THRU BOB VEPPERS, LOCAL REP					65		1.4	9.0	0.6	-0.1	12.4					
5	NO	82	80								90		2.0	8.0	0.6	-0.1	12.4					
6	NO	84	80								70		2.0	8.0	0.3	-0.1	12.4					
7	NO	86	80								70		2.0	11.0	0.1	-0.1	12.4					
8	NO	82	80								90		0.5	10.0	0.3	-0.1	12.4					
9	NO										100		0.5				6.2					
10	NO										110		0.5				6.2					
11	NO	86	80								160		1.4	7.5	0.3	-0.1	6.2				SEE COLUMN 20	SEE COLUMN 20
12	NO	86	80								110		1.0	9.5	1.0	-0.1	6.2					
13	NO	80	80								90		1.4	8.0	0.4	-0.1	6.2					
14	NO	86	80								95		1.0	7.5	0.4	-0.1	6.2					
15	NO	84	80								90		1.0	5.0	0.4	-0.1	6.2					
16	NO										85		1.4	7.0	0.4	-0.1	6.2					
17	NO										87		0.4	17.0	0.9	-0.1	6.2					
18	YES	66	78								120		1.0	6.5	1.2	-0.1	6.2					
19	YES	66	78								90		0.8	15.0	1.2	-0.1	6.2					
20	NO	60	78										0.6	7.0	0.9	-0.1	6.2					
21	NO	70	79								130		1.0	12.0	0.6	0.2	6.2					
22	NO	60	77								150		1.0	7.0	0.1	-0.1	6.2					
23	NO	82	80								150		1.0			-0.1	6.2					
24	NO	81	80								150		2.0	5.0	0.1	-0.1	6.2					
25	NO												0.5				6.2					
26	NO	82	78								150		2.0	12.0	0.1	-0.1	6.2					
27	NO	78	77								150		1.5	9.0	0.2	-0.1	6.2					
28	NO	76	78								140		0.8	12.0	0.7	0.1	6.2					
29	NO	84	75								160		1.5	10.0	1.0	-0.1	6.2					
30	NO	78	77								150		1.4			-0.1	6.2					
31	NO										110		1.4	12.0	0.2	-0.1	6.2					
Tot						EST	0		0	0				234			236					
Avg		78	79			1.0	0		0	0			1.2	9.4	0.5	-0.1	7.6					

38. Treatment Costs:

Labor:

Power:

Chemicals:

Misc.

Total:

39. Conditions at and below Outfall ALGAE EVIDENT; FEW W. WEED

40. How is waste flow determined? FOXBORO EFFLUENT METER; 90° V WIER

41. How is dry or digested sludge disposed? SANITARY LAND FILL

42 Sludge Gas Produced NOT APPLICABLE cubic feet

Utilized NOT APPLICABLE cubic feet

43. Industrial Waste problems NONE

(SECTION B)

Dissolved Oxygen					pH			Recirculation					
R	PRIMARY Effluent	Pond & Final Eff.	Downstream	Upstream	Raw	Primary Effluent	Final Effluent	To Trickling Filter	Return Sludge (Act. Sludge)	Air Supplied	Settleable Solids % 30 Minutes	Remarks	Date
24	25	26	27	28	29	30	31	32	33	34	35	36	37
0.3	0.3	1.8	2.1	NOT RUN	7.3	7.3	7.6	NOT APPLICABLE	NO METERING FACILITY	2.2	9		1
0.6	0.4	1.6	2.0		7.3	7.2	7.9				9	ROUTINE WEEKLY	2
											11	ANALYSIS THIS	③
0.2	0.3	1.6	2.0		7.3	7.2	7.5				11	MONTH DO NOT,	4
0	0.2	1.5	2.1		7.5	7.5	7.2				11	QUITE FRANKLY,	5
0.1	0.4	1.8	2.0		7.5	7.5	7.2				10	CORRELATE. THIS	6
0.1	0.2	1.7	2.0		7.5	7.5	7.2				9	MAY BE DUE TO	7
0.1	0.2	1.9	2.1		7.5	7.5	7.2				10	MAINLY TWO	8
											11	CIRCUMSTANCES:	9
											11	1) FOR A LARGE	⑩
0	0.6	1.8	2.0		7.5	7.5	7.2				11	PORTION OF THE	11
0.1	0.5	1.7	2.0		7.5	7.5	7.2				13	MONTH AN EX-	12
0	0.2	1.9	2.2		7.1	7.1	6.9				14	TENSIVE SEWER	13
0.1	0.2	1.8	2.5		7.5	7.5	7.1				11	LINE CLEANING	14
0	0.3	1.8	2.0		7.5	7.5	7.2			2.7	11	PROGRAM WAS	15
					7.3	7.3	7.2				15	IN PROGRESS	16
											11	2) WE ARE EXPER-	⑰
0.1	0.4	1.9	2.3		7.3	7.3	7.2				16	IENCING VIBRATION	18
0.2	0.3	1.7	2.3		7.4	7.4	7.0				12	INTERFERENCE	19
0.5	0.7	1.9			7.7	7.7	7.0				10	WITH OUR METTLER	20
0	0.2	1.9	2.0		7.5	7.5	7.0				8	H-10 BALANCE -	21
0	0.3	1.9	2.3		7.3	7.3	7.1				9	STEPS ARE BEING	22
											10	TAKEN TO CORRECT	23
0.5	0.5	1.9	2.3		7.3	7.3	7.2				10	THIS.	㉔
												WE DO NOT HONEST-	25
0.2	0.4	1.7	2.4		7.5	7.5	7.0				15	LY BELIEVE OUR	26
0.2	0.3	1.9	2.6		7.5	7.5	7.0				11	LAB PRECISION IS	27
0.2	0.4	1.9	2.3		7.5	7.5	7.0				14	GREATLY DEFECTIVE,	28
0.2	0.3	1.8	2.3		7.5	7.5	6.9				16	OR WAS THE PLANT	29
											14	EFFICIENCY OFF	30
											15	THIS MUCH, BASED	㉛
										76.7		ON OTHER TESTS	Tot
0.2	0.3	1.7	2.2		7.4	7.4	7.2			2.5	12	AND VISUAL.	Avg

44. General Comments, Operating problems or assistance desired

RE: 12 - NEW 1-TON SUPPLY FACILITY DOES NOT INCLUDE WEIGHING.

RE: 18 - ANEROBIC DIGESTORS IN THE PROCESS OF CONVERSION TO AEROBIC. PRIMARY SLUDGE BEING TANKED TO CITY OF MIAMI.

RE: 34 - INCLUDES AIR TO TEMP. AEROBIC DIGESTOR FOR W.A.S.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH ACTUAL FINDINGS.

CLASS A, 1968

Operator and Certificate

(SECTION 5a)

DAWPC PERMIT NO._____ ROUTINE ANALYSIS

COUNTY DADE NAME AND ADDRESS South Miami Heights Public Utility Corp.
P.O. Box 250, Perrine, 33157

DATE	5 DAY BOD (PPM) RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
15	180	141	22	18	90	N.A.	N.A.
21	155	90	42	24	85		
26	235	110	53	40	84	↓	↓
AVE	190	119	39	27	86		
↓ COMPOSITE GRABS ↓							
08	157	136		18	89		
11	170	120		16	91		
12	230	103		12	94		
13							

DATE	TOTAL SOLIDS (PPM) RAW TOTAL	RAW FIXED	PRIMARY EFFLUENT TOTAL	PRIMARY EFFLUENT FIXED	FINAL EFFLUENT TOTAL	FINAL EFFLUENT FIXED	SUSPENDED SOLIDS (PPM) RAW TOTAL	RAW FIXED	PRIMARY EFFLUENT TOTAL	PRIMARY EFFLUENT FIXED	FINAL EFFLUENT TOTAL	FINAL EFFLUENT FIXED
53	54	55	56	57	58	59	60	61	62	63	64	65
15	408	298	228	230	218	210	192	14	108	2	14	1
21	328	322	250	315	216	188	136	6	68	9	10	3
26	572	283	455	286	348	304	172	14	88	6	7	2
AVE	436		311		261		166	11	88	6	10	2
↓ COMPOSITE GRABS ↓												
08							174		159		10	
11							288		120		15	
12							178		110		15	
13							204		104		15	

DRYING BEDS DATE DRAWN	VOLUME DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV FROM BEDS	% SOLIDS	DRYING TIME (DAYS)	pH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
	PRECISE	RECORDS		NOT			
		KEPT AS YET					

DIGESTION DATE	ALKALINITY M.O.	VOLATILE ACIDS	pH
74	75	76	77
	NOT		
	APPLICABLE		
	SEE		
	REMARKS		
	RE: 18		

NUTRIENT FINAL EFF. DATE	PHOSPHATE	NITRATE
78	79	80
	NOT	
	REQUIRED	
	AS YET	

MPN OR MF DATE	RAW	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
NOT	RUN AT			
	THIS TIME			
WORK	LOAD AT			
PRESENT	DOES			
NOT PERMIT	DE-			
LIVERY	TO THE			
REGIONAL	LAB.			

86.
GENERAL NOTES:
Monthly ave. sewage flow (Col. 7 1.0

Show all routine analyses as follows:

(a) Sample composited over 14 hours; (from 08 A.M to 10 P.M.).

(b) Number of samples collected to form one composite sample: 14.

(c) Time interval between sample collections 1 hrs.

(d) Size of each sample used to form one composite sample 100 TO 300 ml.

SUSPENDED SOLIDS PPM DATE	AERATOR (MLSS) TOT	AERATOR (MLSS) FIX	~~[illegible]~~ RETURN SLUDGE TOT	RETURN SLUDGE FIX
87	88	89	90	91
03	2050	750	3290	820
04	1710	560		
07	1280	360	2980	760
10	2000			
13	2490			
16	2070	750	3510	1270
19	1650	510	2440	750
22	1570	560	3120	1150
26	1390	390	3170	930
28	1280	270	1800	460
AVE	1750	520	2820	880

RECEIVING WATER 5 DAY BOD DATE	DOWN STREAM	UP STREAM
92	93	94
28	-2	-2

RAW SLUDGE DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
NOT	RUN	AT		
	THIS	TIME		
SEE	REMARKS			
	RE: 18			

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUTFALL NOT CALCULATED CUBIC FEET/SECOND.
101. DILUTION FACTOR NOT CALCULATED
102. VISUAL STREAM CONDITIONS LT. GREEN; FAIR CLARITY
103 Classification of Water I, II, III, IV CLASS III
(SECTION C)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Post Office Box [illegible] Jacksonville, Florida [illegible]

SEWAGE TREATMENT OPERATION REPORT DAWPC

PERMIT NO. ______

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
Name of City, Subdivision, District, Trailer Park, etc.

Mailing Address: P.O. BOX 250, PERRINE, 33157
(City or Utility Company)

JANUARY 1971 DADE
Month Year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHOE	SUPT.	A
JESSE A. MONEY	LAB/OPR.	NONE
JOHN R. TARIBO	LAB/OPR.	NONE
SILAS BUSH	MECH/PT.O.	NONE
ALLAN K. PLEDGER	OPR. ASST.	NONE

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	57
Population Served	12,100
Equivalent Pop. (Hydraulic load)	10,000
Equivalent Pop. (Biological load)	9,350
Number of Active Connections	3001

Specific type of Treatment provided by this Plant:
CONVENTIONAL ACTIVATED SLUDGE W/ AEROBIC DIGESTION

Please forward this report through your county or regional engineer by the 15th of each following month to:

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks: ______

Central Office Remarks: ______

(SECTION A)

THE DAILY REPORT

Plant Approval Number:

Da.	Weather		Sewage						Chlorination					Settleable Solids			Sludge					
				Flow MGD					Pre		Post											
	Rainfall	Temp °F	Temp °F	Max	Min	Total	Bypass	Grit Screening cu. ft.	Pounds	PPM	Pounds	PPM	Residual PPM	Raw	Primary Effluent	Final Effluent	Fresh Sludge Added to Digester (1000 Gals)	Excess Sludge (Act. Sludge)	Digester Temp. °F	PH Primary Sludge	PH Supernatant	Supernatant Wasted (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	NO	80	79				0		0	0	80		2.0	8.0	0.2	-0.1	12.4					
2	NO	76	78					PLANT EQUIPPED W/BARMINUTER; NO DEGRITTER			70	NOT CALCULATED SEE REMARKS REF. 13	1.4	9.0	0.1	-0.1	6.2	NO METERING EQUIPT. AT THIS TIME	NOT APPLICABLE SEE REMARKS REF: 18	NOT RUN - SLUDGE TANKED OFF	SEE COLUMN 20	SEE COLUMN 20
3	NO										70		2.0				12.4					
4	NO	80	78	FLOW METER STUCK OUT OF	SERVICE; PARTS ARE ON ORDER	THRU BOB JEFFERS, KEENE					65		1.4	9.0	0.6	-0.1	12.4					
5	NO	82	80								90		2.0	8.0	0.6	-0.1	12.4					
6	NO	84	80								70		2.0	8.0	0.3	-0.1	12.4					
7	NO	86	80								70		2.0	11.0	0.1	-0.1	12.4					
8	NO	82	80								90		1.5	10.0	0.3	-0.1	12.4					
9	NO										100		0.5				6.2					
10	NO										110		0.5				6.2					
11	NO	86	80								110		1.4	7.5	0.3	-0.1	6.2					
12	NO	86	80								110		1.0	9.5	1.0	-0.1	6.2					
13	NO	80	80								90		1.4	8.0	0.4	-0.1	6.2					
14	NO	86	80								95		1.0	7.5	0.4	-0.1	6.2					
15	NO	84	80								90		1.0	5.0	0.4	-0.1	6.2					
16	NO										85		1.4	7.0	0.4	-0.1	6.2					
17	NO										87		0.4	17.0	0.9	-0.1	6.2					
18	YES	66	78								120		1.0	6.5	1.2	-0.1	6.2					
19	YES	66	78								90		0.8	15.0	1.2	-0.1	6.2					
20	NO	60	78										0.6	7.0	0.9	-0.1	6.2					
21	NO	70	79								130		1.0	12.0	0.6	0.2	6.2					
22	NO	60	77								150		1.0	7.0	0.1	-0.1	6.2					
23	NO	82	80								150		1.0			-0.1	6.2					
24	NO	81	80								150		2.0	5.0	0.1	-0.1	6.2					
25	NO												0.5				6.2					
26	NO	82	78								150		2.0	12.0	0.1	-0.1	6.2					
27	NO	78	77								150		1.5	9.0	0.2	-0.1	6.2					
28	NO	76	78								140		0.8	12.0	0.7	0.1	6.2					
29	NO	84	75								160		1.5	10.0	1.0	-0.1	6.2					
30	NO	78	77								150		1.4			-0.1	6.2					
31	NO										110		1.4	12.0	0.2	-0.1	6.2					
Tot						EST	0		0	0				234			236					
Avg		78	79			1.0	0		0	0			1.2	9.4	0.5	-0.1	7.6					

38. Treatment Costs:	39. Conditions at and below Outfall ALGAE EVIDENT; FEW W. WEED
Labor:	40. How is waste flow determined? FOXBORO EFFLUENT METER; 90° V WIER
Power.	41. How is dry or digested sludge disposed? SANITARY LAND FILL
Chemicals:	42 Sludge Gas Produced NOT APPLICABLE cubic feet
Misc:	Utilized NOT APPLICABLE cubic feet
Total:	43. Industrial Waste problems NONE

(SECTION B)

Dissolved Oxygen					pH			Recirculation					
Raw	PRIMARY Effluent	Pond & Final Eff.	Downstream	Upstream	Raw	Primary Effluent	Final Effluent	To Trickling Filter	Return Sludge (Act Sludge)	Air Supplied	Settleable Solids % 30 Minutes	Remarks	Date
24	25	26	27	28	29	30	31	32	33	34	35	36	37
0.3	0.3	1.8	2.1	NOT RUN	7.3	7.3	7.6	NOT APPLICABLE	NO METERING FACILITY	2.2	9		1
0.6	0.4	1.6	2.0		7.3	7.2	7.9				9	ROUTINE WEEKLY	2
											11	ANALYSIS THIS	③
0.2	0.3	1.6	2.0		7.3	7.2	7.5				11	MONTH DO NOT,	4
0	0.2	1.5	2.1		7.5	7.5	7.2				11	QUITE FRANKLY,	5
0.1	0.4	1.8	2.0		7.5	7.5	7.2				10	CORRELATE. THIS	6
0.1	0.2	1.7	2.0		7.5	7.5	7.2				9	MAY BE DUE TO	7
0.1	0.2	1.9	2.1		7.5	7.5	7.2				10	MAINLY TWO	8
											11	CIRCUMSTANCES:	9
											11	1) FOR A LARGE	⑩
0	0.6	1.8	2.0		7.5	7.5	7.2				11	PORTION OF THE	11
0.1	0.5	1.7	2.0		7.5	7.5	7.2				13	MONTH AN EX-	12
0	0.2	1.9	2.2		7.1	7.1	6.9				14	TENSIVE SEWER	13
0.1	0.2	1.8	2.5		7.5	7.5	7.1				11	LINE CLEANING	14
0	0.3	1.8	2.0		7.5	7.5	7.2			2.7	11	PROGRAM WAS	15
—					7.3	7.5	7.2				15	IN PROGRESS	16
											11	2) WE ARE EXPER-	⑰
0.1	0.4	1.9	2.3		7.3	7.3	7.2				16	IENCING VIBRATION	18
0.2	0.3	1.7	2.3		7.4	7.4	7.0				12	INTERFERENCE	19
0.5	0.7	1.9			7.7	7.7	7.0				10	WITH OUR METTLER	20
0	0.2	1.9	2.0		7.5	7.5	7.0				8	H-10 BALANCE -	21
0	0.3	1.9	2.3		7.3	7.3	7.1				9	STEPS ARE BEING	22
											10	TAKEN TO CORRECT	23
0.5	0.5	1.9	2.3		7.3	7.3	7.2				10	THIS.	㉔
												WE DO NOT HONEST-	25
0.2	0.4	1.7	2.4		7.5	7.5	7.0				15	LY BELIEVE OUR	26
0.2	0.3	1.9	2.6		7.5	7.5	7.0				11	LAB PRECISION IS	27
0.2	0.4	1.9	2.3		7.5	7.5	7.0				14	GREATLY DEFECTIVE,	28
0.2	0.3	1.8	2.3		7.5	7.5	6.9				16	OR WAS THE PLANT	29
											14	EFFICIENCY OFF	30
											15	THIS MUCH, BASED	㉛
										76.7		ON OTHER TESTS	Tot
0.2	0.3	1.7	2.2		7.4	7.4	7.2			2.5	12	AND VISUAL.	Avg

44. General Comments, Operating problems or assistance desired

RE: 12 - NEW 1-TON SUPPLY FACILITY DOES NOT INCLUDE WEIGHING.

RE: 8 - ANEROBIC DIGESTORS IN THE ROCESS OF CONVERSION TO AEROBIC. PRIMARY SLUDGE BEING TANKED TO CITY OF MIAMI.

RE: 34 - INCLUDES AIR TO TEMP. AEROBIC DIGESTOR FOR W.A.S.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH ACTUAL FINDINGS.

CLASS A, 196

Operator and Certificate

(SECTION 8a)

DAWPC PERMIT NO.______ ROUTINE ANALYSIS

COUNTY DADE

NAME AND ADDRESS South Miami Heights Public Utility Corp. P.O. Box 250, Perrine, 33157

DATE	5 DAY BOD (PPM)							
	* RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
15	180	141	22	18	90	N.A.	N.A.
21	155	90	42	24	65	↓	↓
26	235	110	53	40	84		
AVE	190	117	39	27	86		
↓ COMPOSITE GRABS ↓							
08	157	136		18	89		
11	170	120		16	91		
12	230	103		12	94		
13							

DATE	TOTAL SOLIDS (PPM)						SUSPENDED SOLIDS (PPM)					
	RAW		PRIMARY EFFLUENT		FINAL EFFLUENT		RAW		PRIMARY EFFLUENT		FINAL EFFLUENT	
	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED
53	54	55	56	57	58	59	60	61	62	63	64	65
15	408	298	308	230	218	210	192	14	108	2	14	1
21	338	322	350	315	218	188	130	6	68	9	10	3
26	562	283	455	280	345	304	172	14	88	6	7	2
AVE	436		371		261		166	11	88	6	10	2
↓ COMPOSITE GRABS ↓												
08							174		159		10	
11							288		120		15	
12							178		110		15	
13							204		104		15	

DRYING BEDS							
DATE DRAWN	VOLUME DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV. FROM BEDS	% SOLIDS	DRYING TIME (DAYS)	pH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
PRECISE RECORDS NOT							
		KEPT AS YET					

DIGESTION			
DATE	ALKALINITY M.O.	VOLATILE ACIDS	pH
74	75	76	77
NOT			
APPLICABLE			
SEE			
REMARKS			
RE: 18			

NUTRIENT FINAL EFF.		
DATE	PHOSPHATE	NITRATE
78	79	80
NOT		
REQUIRED		
AS YET		

MPN OR MF				
DATE	RAW	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
NOT RUN AT				
THIS TIME				
WORK LOAD AT				
PRESENT DOES				
NOT PERMIT DE-				
LIVERY TO THE				
REGIONAL LAB.				

86.
GENERAL NOTES:
Monthly ave. sewage flow (Col. 7 1.0

Show all routine analyses as follows:

(a) Sample composited over 14 hours; (from 08 A.M to 10 P.M.).

(b) Number of samples collected to form one composite sample: 14.

(c) Time interval between sample collections 1 hrs.

(d) Size of each sample used to form one composite sample 100 TO 300 ml.

SUSPENDED SOLIDS PPM				
DATE	AERATOR (MLSS)		RETURN SLUDGE	
	TOT	FIX	TOT	FIX
87	88	89	90	91
03	2050	750	3290	820
04	1710	500		
07	1280	300	2380	700
10	2000			
13	2490			
16	2070	750	3510	1270
19	1650	510	2440	750
22	1570	500	3120	1150
26	1390	390	3170	930
28	1280	270	1800	460
AVE	1750	520	2820	880

RECEIVING WATER 5 DAY BOD		
DATE	DOWN STREAM	UP STREAM
92	93	94
28	-2	-2

RAW SLUDGE				
DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
NOT RUN AT				
THIS TIME				
SEE REMARKS				
RE: 18				

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUT-FALL NOT CALCULABLE CUBIC FEET/SECOND.
101. DILUTION FACTOR NOT CALCULATED
102. VISUAL STREAM CONDITIONS LT. GREEN; FAIR CLARITY
103 Classification of Water I, II, III, IV CLASS III
(SECTION C)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Post Office Box 210 Jacksonville, Florida 32201

THE DAILY REPORT

Plant Approval Number: 24 AUG 55 SERIAL No. 1654

Date	Weather: Rainfall	Weather: Temp °F	Sewage: Temp °F	Flow MGD: Max	Flow MGD: Min	Flow MGD: Total	Bypass RAW	Grit & Screening cu. ft.	Chlorination Pre: Pounds	Pre: PPM	Post: Pounds	Post: PPM	Residual PPM	Settleable Solids: Raw	Primary Effluent	Final Effluent	SEE Sludge #4A: Fresh Sludge Added to Digester (1000 Gals)	Excess Sludge (Act. Sludge)	Digester Temp. °F	PH Primary Sludge	PH Supernatant	Supernatant Wasted (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0	86	79			.88	0	PLANT EQUIPPED W/BARMINUTOR & NO GRIT REMOVAL	0	0	71	10	2.4	10	-0.1	-0.1	6.4	SEE COLUMN NO. 4A	SEE COLUMN NO. 4A	SEE COLUMN NO. 4A	SEE COLUMN NO. 4A	SEE COLUMN NO. 4A
2				1.6	0	.91					73		2.4									
3				1.9	0	.87					94	13	2.4	6	0.2	-0.1						
4				1.6	0	.87					94	13	2.4	8	1.2	-0.1						
5				1.6	0.1	.95					65	8	2.4	9	0.1	-0.1						
6		83	80			.99					59	7	2.4	8	0.5	-0.1						
7		74	78	2.3	0.1	.95					59	8	2.0	12	1.1	-0.1						
8		82	79	1.6	0.1	.95					58	7	2.0	9	0.3	0.1						
9		80	79	1.6	0.1	.89					57	9	2.0	3	1.3	-0.1						
10				2.0	0	.84					94		2.0	8	0.1	-0.1	12.8					
11		91	85	1.6	0.1	.88					71	8	2.0	11	0.1	-0.1	19.2					
12		70	79	1.7	0.2	.83					86	9	2.0	7	1.0	-0.1	6.4					
13		52	79	2.3	0.2	.95							2.0	3	-0.1	-0.1						
14				1.9	0	1.00					66		2.0	12	0.3	-0.1						
15		92	80	2.1	0	.86					70	8	2.0	7	0.1	-0.1						
16		86	79	1.6	0.2	.91					70	8	2.0	5	-0.1	-0.1						
17				1.5	0.2	.88					70		0.8	5.5	0.3	-0.1						
18		82	78	1.6	0.3	.88					70	8	2.0	7	-0.1	-0.1						
19		81	78	1.4	0	.92					70	8	2.0	11	1.0	-0.1						
20		84	79	FLOW	METER	MALFUNCTION					70		2.0	11	-0.1	-0.1						
21		80	78								70		2.0	8	0.7	-0.1						
22		80	78								70		1.4	9	-0.1	-0.1						
23		86	80								70		2.0	7	0.3	-0.1						
24		80	80								70		1.4	8	0.2	-0.1						
25											70		1.4	8	0.7	-0.1						
26		72	78								65		0.5	7	0.1	-0.1						
27		68	75								70		1.0	15	0.6	-0.1						
28		76	79								70		1.0	28	0.2	-0.1						
29		78	78								70		1.4	9	0.4	-0.1						
30		80	78								80		1.4	7	0.5	-0.1	12.8					
31		82	79								76		1.4	13	0.3	-0.1	12.8					
Tot	0						0		0	0												
Avg	0						0		0	0												

38. Treatment Costs:

Labor:

Power:

Chemicals:

Misc:

Total:

39. Conditions at and below Outfall CLEAR W/LIGHT GREEN COLOR

40. How is waste flow determined? FOXBORO EFFLUENT METER & VEE WIER

41. How is dry or digested sludge disposed? SANITARY LAND FILL

42 Sludge Gas Produced METER cubic feet

Utilized INOPERABLE cubic feet

43. Industrial Waste problems NONE

(SECTION B)

SEWAGE TREATMENT OPERATION REPORT

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
(City, Subdivision, District, Trailer Park, etc)

Mailing Address: P.O. BOX 250, PERRINE, FL, 33157
(City or Utility Company)

DECEMBER 70 DADE
Month year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHOE	SUPT.	A
JESSE A. MONEY	OPR/LAB	No
JOHN R. TARIBO	OPR/LAB	No
SYLAS BUSH	MECH/P.T. OPR.	N.A.
ALLEN K. PLEDGER	OPR. ASST	N.A.

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	57
Population Served	12,400
Equivalent Pop. (Hydraulic load)	10,000
Equivalent Pop. (Biological load)	9,500
TOTAL CONNECTIONS	3,001

Specific type of Treatment provided by this Plant:
CONVENTIONAL ACTIVATED SLUDGE

Please forward this report through your county or regional engineer by the 15th of each following month to:

FLORIDA STATE BOARD OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks:

Central Office Remarks:

(SECTION A)

Dissolved Oxygen					pH			Recirculation				Remarks						
Ra.	Secondary Effluent	Pond & Final Eff.	Downstream	Upstream	Raw	Primary Effluent	Final Effluent	To Trickling Filter	Return Sludge (Act. Sludge)	Air Supplied	Settleable Solids % 30 Minutes							Date
24	25	26	27	28	29	30	31	32	33	34	35	36						37
0.3	0.5	1.7		NOT RUN	7.3	7.4	7.2	NOT APPLICABLE	NO METERING FACILITY AT THIS TIME	2.2	54	THE FOLLOWING						1
												ANALYSIS WERE						2
											57	RUN ON RANDOM						3
0.3	0.4	2.1									65	ONE HOUR COM-						4
2.0	0.3	2.0			7.4	7.4	7.3				60	POSITE GRAB						5
0.5	0.4	1.8	2.1		7.3	7.3	7.1				28	SAMPLES CONSIST-						⑥
0.3	0.3	1.8	1.9		7.3	7.4	7.2				32	ING OF 250 ML.						7
0.3	0.2	1.6	1.9		7.5	7.3	7.2				42	PORTIONS AT 15						8
0.3	0.2	1.6	2.0		7.3	7.4	7.9				41	MIN. INTERVALS						9
											30							10
1.8	0.3	2.2	2.3		7.4	7.3	7.6				22							11
0.3	0.4	1.7	2.0		7.2	7.3	7.3				30	B.O.D.			S.S.			12
0.4	0.6	2.0	2.3		7.5	7.3	7.0				32	RAW	FIN	C/C	RAW	FIN	C/C	⑬
											67	169	14	91	221	9	96	14
2.4	0.3	1.4	2.2		7.5	7.3	7.4				31	143	28	80	166	7	96	15
[illegible]	0.3	1.5	2.1		7.3	7.4	7.3				10	215	40	81	189	10	95	16
											11							17
0.6	0.4	2.0	2.3		7.3	7.2	7.0				17							18
0.7	0.5	1.8	2.0		7.3	7.2	7.1				20	202	4	98	238	8	97	19
0.6	0.4	1.9	2.2		7.3	7.3	7.1				26							⑳
0.4	0.6	1.6	2.0		7.3	7.3	8.2				25							21
0.3	0.4	2.0	2.1		7.3	7.2	7.3				34							22
0.2	0.4	1.8	2.0		7.2	7.3	7.6				29							23
0.1	0.4	2.1	2.2		7.2	7.3	7.2				32							24
											32							25
0.2	0.3	1.8	2.1		7.3	7.3	7.9				37							26
0.2	0.3	1.8			7.4	7.4	7.7				23							㉗
0.1	0.3	1.8	2.4		7.3	7.3	7.9				22							28
0.2	0.5	2.0	2.4		7.4	7.4	7.8				20							29
0.1	0.3	1.7	2.0		7.3	7.2	7.4				11	165	19	89	248	17	97	30
0.1	0.4	2.0	2.5		7.2	7.2	7.4			↓	10							31
										68.2								Tot
										2.2								Avg

44. General Comments, Operating problems or assistance desired

COLUMN #18: PRIMARY SLUDGE HAULED VIA TANKER TO CITY OF MIAMI PLANT.

COLUMN #19: PROCEDURE AT THIS TIME DOES NOT PERMIT ACCURATE REPORTING.

COLUMN # 20-23: ANEROBIC DIGESTOR IN THE PROCESS OF CONVERSION TO AEROBIC DIGESTION.

COLUMN #34: INCLUDES AIR TO TEMPORARY AEROBIC DIGESTOR.

COLUMN #35: AVERAGE OF 3 IN-SERVICE AERATORS.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH (SECTION Ba) ACTUAL FINDINGS.

, C.O.
OPERATOR

ROUTINE ANALYSIS

DATE	5 DAY BOD (PPM) RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
4	196	127	13	10	93	N.A.	N.A.
11	190	141	26	8	96	N.A.	N.A.
22	295	230	6	9	96	N.A.	N.A.
NOV BY: POLLUTION CONTROL CONSULTANTS, INC.							
27	240	NR	N.R.	10	96	N.A.	N.A.

DATE	TOTAL SOLIDS (PPM)						SUSPENDED SOLIDS (PPM)					
	RAW		PRIMARY EFFLUENT		FINAL EFFLUENT		RAW		PRIMARY EFFLUENT		FINAL EFFLUENT	
	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED
53	54	55	56	57	58	59	60	61	62	63	64	65
4	610	354	600	408	384	357	175		113		13	
11	627	525	500	274	417	278	171		95		6	
22	620	284	455	250	475	378	212	46	80	12	5	2
27	611	306	N.R.	N.R.	417	305	158	26	N.R.	N.R.	10	-3

DRYING BEDS DATE DRAWN	VOLUME DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV FROM BEDS	% SOLIDS	DRYING TIME (DAYS)	pH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
PRECISE RECORDS NOT							
KEPT AT THIS TIME							

DIGESTION DATE	ALKALINITY M.O.	VOLATILE ACIDS	pH
74	75	76	77
SEE REMARK			
No. 3 UNDER			
COLUMN No. 49			

NITROGEN FINAL EFF. DATE	NITRITE	NITRATE
78	79	80
NOT		
RUN		
NOT A RE-		
QUIREMENT		
AT THIS		
TIME		

MPN OR MF DATE	RAW	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
NOT				
RUN				

86.
GENERAL NOTES:

Show all routine analyses as follows:

(a) Sample composited over 15 hours; (from 7 A.M to 10 P.M.).

(b) Number of samples collected to form one composite sample: 15.

(c) Time interval between sample collections 1 hrs.

(d) Size of each sample used to form one composite sample 100 TO 300 ML. ml.

DATE	SUSPENDED SOLIDS PPM AERATOR (MLSS) TOT	FIX	REAIR OR RETURN SLUDGE TOT	FIX
87	88	89	90	91
1	2770			
4	2390			
7	2200			
9	2770			
13	2300			
15	2120			
19	1920	320	2740	860
22	2600	930		
24	2050	690		
28	2740	1260	5490	2460

RECEIVING WATER 5 DAY BOD DATE	DOWN STREAM	UP STREAM
92	93	94
NOT		
RUN		

RAW SLUDGE DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
NOT				
RUN				
SEE REMARK				
NO. 3 UNDER				
COLUMN NO. 49				

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUTFALL NOT CALCULATED CUBIC FEET/SECOND. VISUAL: VERY LITTLE
101. DILUTION FACTOR NOT CALCULATED
102. VISUAL STREAM CONDITIONS WATER IS SOMEWHAT TURBID FROM ALGAE BLOOM

FLORIDA STATE BOARD OF HEALTH
Bureau of Sanitary Engineering
Jacksonville, Florida

(SECTION C)

SEWAGE TREATMENT OPERATION REPORT

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
(City, Subdivision, District, Trailer Park, etc)

Mailing address: P.O. BOX 250, PERRINE, FL. 33157
(City or Utility Company)

NOVEMBER 1970 DADE
Month year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHOE	SUPT.	A
JESSE A. MONEY	OPR./LAB	N.A.
SYLAS BUSH	MAIN/Pt. ENG.	N.A
ALLAN PLEDGER	OPR. ASST	N.A.

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	57*
Population Served	Unknown
Equivalent Pop. (Hydraulic load)	10,000
Equivalent Pop. (Biological load)	9,000

*SEE REMARKS C.. 5,6,#7

Specific type of Treatment provided by this Plant:

CONVENTIONAL ACTIVATED SLUDGE

Please forward this report through your county or regional engineer by the 15th of each following month to:

FLORIDA STATE BOARD OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County

Remarks:

Central Office Remarks:

(SECTION A)

THE DAILY REPORT

Plant Approval Number: 24 AUG 55 SERIAL NO. 1654

Date	Weather		Sewage						Chlorination					Settleable Solids			SEE Sludge # 44					
				Flow MGD					Pre		Post											
	Rainfall	Temp °F	Temp °F	Max	Min	Total	By pass RAW	Grit Screening Cu. Ft.	Pounds	PPM	Pounds	PPM	Residual PPM	Raw	Primary Effluent	Final Effluent	Fresh Sludge Added to Digester (1000 Gals)	Excess Sludge (Act. Sludge)	Digester Temp. °F	PH Primary Sludge	PH Supernatant	Supernatant Wasted (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
①		89	92	1.9	0.1	1.5	0		0	0	126	10	2.0	15	0.2	TR.	6.4					
2		89	82	1.9	0.1	0.9		PLANT EQUIPPED W/COMMINUTOR & NO GRIT REMOVAL			117	16	2.0	10	TR.	TR.	6.4					
3		92		1.5	0.0	1.0					103	12	2.0									
4		70	78								141	17	2.0	5	0.3	0.2						
5		83	80								114	19	2.0	6	0.2	TR.						
6		85	80								92	11	2.0	9	0.3	TR.						
7				RECORDED DATA FROM FLOW	RECORDER AGAIN INDICATES	MALFUNCTION. REPAIRMAN CALLED					121	19	0.3									
⑧		80	79								136	16	2.0	9	0.3	TR.						
9		89	80								131	16	2.0	5	TR.	TR.						
10		86	80								148	18	2.0	15	0.3	TR.		SEE COLUMN No. 44	SEE COLUMN No. 44	SEE COLUMN No. 44	SEE COLUMN No. 44	SEE COLUMN No. 44
11		88	80								100	12	2.0	32	0.1	TR.	12.8					
12	NO RAIN										106	13	2.0				6.4					
13		82	80								102	12	2.0	8	TR	TR.	6.4					
14		85	81								80	10	2.0	6	TR.	TR.						
⑮											78	9	2.0									
16		68	78								78	9	2.0	7.5	1.5	TR.						
17		74	77								56	7	2.0	11	<0.1	TR.						
18		82	78								48	6	1.6	12	0.5	TR.						
19											55	7	–									
20		87	80								83	10	1.0	9	0.8	TR.						
21		86	79								56	7	2.0	8	0.6	TR.						
㉒											67	8	2.0									
23		73	79								85	10	2.0	7	0.1	TR.						
24		78	77								62	7	2.0	6.5	1.2	TR.						
25		74	76								77	9	1.0	8	0.5	TR.						
26											78	9	2.0	4.5	0.1	TR.						
27		78	79								69	8	2.0	7	0.2	TR.						
28		82	79								67	8	2.0	5	TR.	TR.						
㉙		82	79								66	8	2.0	7	0.1	TR						
30		82	79								61	7	2.0	7.5	0.1	TR.						
31																						
Tot				ESTIMATED			0		0	0							198.4					
Avg				2.0	0.0	1.0	0		0	0			2.0				6.4+					

38. Treatment Costs:

Labor:

Power:

Chemicals:

Misc:

Total:

39. Conditions at and below Outfall CLEAR W/LIGHT GREEN COLOR

40. How is waste flow determined? FOXBORO EFFLUENT METER & VEE WIER

41. How is dry or digested sludge disposed? SANITARY LAND FILL

42 Sludge Gas Produced METER cubic feet

Utilized INOPERABLE cubic feet

43. Industrial waste problems NONE THAT WE ARE AWARE OF

(SECTION B)

Dissolved Oxygen					pH			Recirculation		Air Supplied	Settleable Solids % 30 Minutes AVERAGE	Remarks						Date
Raw	Secondary Effluent	Pond & Final Eff.	Downstream	STATE CANAL Upstream	Raw	Primary Effluent	Final Effluent	To Trickling Filter	Return Sludge (Act Sludge)									
24	25	26	27	28	29	30	31	32	33	34	35	36						37
	0.6	2.1		2.2	7.3	7.3	7.0	NOT APPLICABLE	NO METERING FACILITY AT THIS TIME	2.2	22	ANALYSIS FOLLOWING						1
	0.7	2.2		2.3	7.3	7.3	7.0				20	WERE RUN ON RAW -						2
												FROM 1 HOUR						3
	0.7	2.2		2.5	7.2	7.2	6.9				21	COMPOSITE GRABS						4
	0.7	2.2		2.5	7.2	7.2	6.9				21	CONSISTING OF						5
	0.6	2.3		2.5	7.4	7.3	6.8				11	250 ML PORTIONS						6
												AT 15 MIN. INTERVALS						7
	0.4	1.8		2.3	7.4	7.3	7.3				16							8
	0.5	2.0		2.3	7.3	7.3	7.1				20	BOD			TSS			9
	0.3	2.3		2.8	7.5	7.8	6.9				19	RAW	FIN	%	RAW	FIN.	%	10
	0.6	1.7		2.2	7.1	7.2	7.5				18	175	30	83	296	21	93	11
																		12
	0.6	2.0		2.5	7.2	7.4	7.1				23	145	10	93	163	11	93	13
0.3	0.2	1.8		2.8	7.3	7.3	7.1				25							14
																		15
0.3	0.4	2.4		2.6	7.3	7.4	7.0				21							16
0.2	0.3	1.8		2.7	7.3	7.3	7.0				21	190	22	89	118	9	93	17
0.3	0.4	2.0		2.6	7.3	7.3	7.0				21	231	13	94	167	4	98	18
																		19
0.3	0.5	2.2		2.5	7.4	7.3	7.0				28							20
0.2	0.2	1.7		2.0	7.3	7.3	7.1				34							21
																		22
0.3	0.3	1.8		2.3	7.3	7.3	7.2				25	120	10	92	129	8	94	23
0.3	0.6	2.4			7.3	7.3	7.7				35							24
0.4	0.6	2.4		2.6	7.3	7.3	7.5				54	220	8	96	161	10	94	25
												AVERAGE			AVERAGE			26
0.2	0.4	1.6		2.1	7.3	7.2	7.3				40							27
0.2	0.4	1.7		2.3	7.3	7.4	7.3				63							28
0.3	0.5	1.9		2.4	7.3	7.3	7.1				64							29
0.3	0.3	1.6	2.0	2.0	7.3	7.4	7.2				50							30
																		31
										66.0								Tot
0.3	0.5				7.3	7.3	7.1			2.2								Avg

44. General Comments, Operating problems or assistance desired

COLUMN # 18: PRIMARY SLUDGE HAULED VIA TANKER TO CITY OF MIAMI PLANT.

COLUMN # 19: ADDED TO AERATOR #1 (TEMP. AEROBIC DIGESTOR). VOLUMES AND CONCENTRATIONS NOT RECORDED AT THIS TIME.

COLUMN # 20-23: NO ANALYSIS RUN DUE TO ANEROBIC DIGESTOR NOT IN USE DUE TO ANTICIPATED CONVERSION TO AEROBIC DIGESTOR.

COLUMN # 34: INCLUDES AIR TO TEMP AEROBIC DIGESTOR.

Operator

(SECTION Ba)

ROUTINE ANALYSIS

Date	5 DAY BOD (PPM) Raw	Primary Effluent	% Removed	Secondary Effluent	% Removed	Polishing Pond Effluent	% Removed
45	46	47	48	49	50	51	52
Oct							
30	150			6	96		
Nov							
13	170			3	98		
20	230			10	96		
[illegible]	185			8	97		

	TOTAL SOLIDS (PPM)						SUSPENDED SOLIDS (PPM)					
	Raw		Primary Effluent		Final Effluent		Raw		Primary Effluent		Final Effluent	
Date	Total	Fixed	Total	Fixed	Total	Fixed	Total	Fixed	Total	Fixed	Total	Fixed
53	54	55	56	57	58	59	60	61	62	63	64	65
Oct												
30	[illegible]	240			290	230	185	62			29	16
Nov												
13	526	300			330	290	190	30			13	<3
20	617	338			363	236	260	27			19	16

THESE ANALYSIS BY: POLLUTION CONTROL CONSULTANTS, INC.

DRYING BEDS

Date Drawn	Volume Drawn	% Solids	% Vol Solids	Date Remo. From Beds	% Solids	Drying Time (Days)	pH of Sludge To Beds
66	67	68	69	70	71	72	73
PRECISE	RECORDS	NOT					
KEPT	AT	THIS	TIME				

DIGESTION

Date	Alkalinity M.O.	Volatile Acids	pH
74	75	76	77
1	2856	445	7.3
6	3370	680	7.3
9	3080	297	7.4
14	3330	371	7.5
17	3080	453	7.4
18	3520	185	7.4
20	3440	371	7.3
25	3546	319	7.4

NITROGEN FINAL EFF.

Date	Nitrite	Nitrate
78	79	80
	NOT RUN	

MPN OR MF

Date	Raw	Final Effluent	Down Stream	Up Stream
81	82	83	84	85
		NOT RUN		

86.
GENERAL NOTES:

Show all routine analyses as follows:
(a) Sample composited over 8 hours; (from 8 A.M to 3 P.M.).
(b) Number of samples collected to form one composite sample: 8.
(c) Time interval between sample collections 1 hrs.
(d) Size of each sample used to form one composite sample UNKNOWN ml.

SUSPENDED SOLIDS PPM

Date	Aerator (MLSS) Tot	Aerator (MLSS) Fix	Repair or Return Sludge Tot	Repair or Return Sludge Fix
87	88	89	90	91
1	2760			
5	3325			
8	2063	NOT RUN	NOT RUN	NOT RUN
10	3006			
13	3012			
16	2203			
20	1766			
23	1496			
25	2585			
28	3161			

RECEIVING WATER 5 DAY BOD

Date	Down Stream	Up Stream
92	93	94
	NOT RUN	

RAW SLUDGE

Date	Total Solids	% Solids	Fixed Solids	% Vol Solids
95	96	97	98	99
		NOT RUN SEE COL. NO. 99		

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUTFALL NOT CALCULATED CUBIC FEET/SECOND.
101. DILUTION FACTOR NOT CALCULATED
102. VISUAL STREAM CONDITIONS WATER LOOKS FAIRLY CLEAR; MILD ALGAE BLOOM IN EVIDENCE

FLORIDA STATE BOARD OF HEALTH
Bureau of Sanitary Engineering
Jacksonville, Florida

(SECTION C)

SEWAGE TREATMENT OPERATION REPORT

DAWPC
PERMIT NO.

SOUTH MIAMI HEIGHTS PUBLIC UTILITY CORP.
Name of City, Subdivision, District, Trailer Park, etc.

Mailing Address: P.O. BOX 250, PERRINE, FL, 33157
(City or Utility Company)

OCTOBER 1970 DADE
Month year County

OPERATING PERSONNEL		
NAME	TITLE	CLASS
GARY L. MISHOE	SUPT.	A
BILL BRYANT	OPR.	C
(TERMINATED FRI, 16 OCT 70)		
JESSE A. MONEY	OPR./LAB	N.A.
ALLAN PLEDGER	OPR. ASST.	N.A.
SYLAS BUSH	MECH.	N.A.

PLANT DESIGN DATA

Design Capacity (MGD)	1.75
% Design Capacity Utilized	57
Population Served	
Equivalent Pop. (Hydraulic load)	10,000
Equivalent Pop. (Biological load)	NOT COMPUTED
Number of Active Connections	

Specific type of Treatment provided by this Plant:
CONVENTIONAL ACTIVATED SLUDGE

Please forward this report through your county or regional engineer by the 15th of each following month to:

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Bureau of Sanitary Engineering
P. O. Box 210
Jacksonville, Florida 32201

Regional and/or County
Remarks:

Central Office Remarks:

(SECTION A)

THE DAILY REPORT

Plant Approval Number: AUG. 29, 1955 SERIAL No. 1654

Date	Weather: Rainfall	Weather: Temp °F	Sewage: Temp °F	Sewage: Flow MGD Max	Flow MGD Min	Flow MGD Total	Bypass AT PLANT	Grit Screening cu. ft.	Chlorination: Pre Pounds	Pre PPM	Post Pounds	Post PPM	Residual PPM	Settleable Solids: Raw	Primary Effluent	Final Effluent	Sludge: Fresh Sludge Added to Digester (1000 Gals)	Excess Sludge (Act. Sludge) (?)	Digester Temp. °F	pH Primary Sludge	pH Supernatant	Super. Was. (1000 Gals)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	NO FACILITY	NOT RECORDED	NOT RECORDED	NOT ACCURATE	METER REPAIR	ON 14 OCT 70	0	PLANT EQUIPPED W/ COMMINUTOR & NO GRIT REMOVAL	0	0	85			7.0	0.0	0.0	0	0		NOT RUN	NOT RUN	0
2											60			10.0	T	T			GAGE ACCURACY IS QUESTIONABLE			
3											71											
4											72											
5											42											
6											76											
7											32		TR.	8.5	0.9	0.1						
8											68		.75	10.0	0.3	0.1						
9											69											
10											33			7.5	0.3	0.1						
11											57											
12											58		2.0									
13											76		2.0	8.5	0.6	0.1						
14		72									72											
15											78											
16						1.0												YES				
17													2.0	7.5	0.3	0.2		0				
18						0.8					96		2.0	6.5	0.6	0.0		YES				
19						1.0					105		0.3	5.5	0.4	0.1						
20			80	2.5	0.3	1.0					95		0.2	8.0	1.0	0.0		0				
21		76	80			1.1					70	13	0.2	7.0	TR	TR		0	86			
22		74	81	2.8	0.4	1.1					130	15	4.0	5.0	TR	0.0		YES				
23		68	81	2.8	0.3	1.1					152		3.0									
24				2.4	0.2						140											
25		92	81	2.6	0	1.0					136	14	2.0	10.0	TR	0.0						
26				2.4	0.1	1.1																
27		90	81	2.4	0.1	0.9					125	14	2.0	5.0	TR.	0.0			86			
28		90	81	2.5	0.2	1.0					130	13	2.0	14	TR.	TR.						
29		90	81	2.2	0.2	0.9					130	13	2.0	6.0	0.7	TR.						
30		90	82	2.1	0.2	0.8					135	13	2.0	5.0	TR.	0.0						
31		89	81	1.7	0.2						87	13	2.0	14	TR.	0.0			81			
Tot			–	–	–	–	0		0	0	–	–					0					0
Avg			81	2.4	0.2	1.0	0		0	0	85	10	1.50	7.4	0.3	<0.1	0①	②	85			0

38. Treatment Costs:	39. Conditions at and below Outfall O.K.
Labor:	40. How is waste flow determined? FOXBORO EFFLUENT METER W/ VEE WEIR
Power:	41. How is dry or digested sludge disposed? SANITARY LAND FILL
Chemicals:	42. Sludge Gas Produced METER cubic feet
Misc.:	Utilized INOPERABLE cubic feet
Total:	43. Industrial waste problems NONE

(SECTION B)

DAWPC PERMIT NO._____ ROUTINE ANALYSIS

COUNTY Dade

NAME AND ADDRESS So. Miami Hts. Pub. Util. Corp. Perrine

5 DAY BOD (PPM)							
DATE	RAW	PRIMARY EFFLUENT	% REMOVED	SECONDARY EFFLUENT	% REMOVED	POLISHING POND EFFLUENT	% REMOVED
45	46	47	48	49	50	51	52
9	185			12	94		
25	125			18	86		

	TOTAL SOLIDS (PPM)						SUSPENDED SOLIDS (PPM)					
	RAW		PRIMARY EFFLUENT		FINAL EFFLUENT		RAW		PRIMARY EFFLUENT		FINAL EFFLUENT	
DATE	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED	TOTAL	FIXED
53	54	55	56	57	58	59	60	61	62	63	64	65
9	490	255			540	255	155	27			18	<3
23	545	285			330	200	140	<3			25	<3

DRYING BEDS							
DATE DRAWN	VOLUME DRAWN	% SOLIDS	% VOL SOLIDS	DATE REMV FROM BEDS	% SOLIDS	DRYING TIME (DAYS)	PH OF SLDG TO BEDS
66	67	68	69	70	71	72	73
28		1.0	60				
29		1.4	61				

DIGESTION			
DATE	ALKALINITY M.O.	VOLATILE ACIDS	PH
74	75	76	77
18	2470	1540	8.0
19	2640	[illegible]	7.8
20	2590	1520	8.0
21	2360	1200	7.7
25	2840	-	7.4
30	3000	300	7.3

NUTRIENT FINAL EFF.		
DATE	PHOSPHATE	NITRATE
78	79	80
	NOT	
	RUN	

MPN OR MF				
DATE	RAW	FINAL EFFLUENT	DOWN STREAM	UP STREAM
81	82	83	84	85
		NOT		
		RUN		

86.
GENERAL NOTES:

Monthly ave. sewage flow (Col. 7 ___

Show all routine analyses as follows:

(a) Sample composited over 8 hours; (from 7 A.M to 3 P.M.).

(b) Number of samples collected to form one composite sample: 8.

(c) Time interval between sample collections 1 hrs.

(d) Size of each sample used to form one composite sample 200-500 ml.

SUSPENDED SOLIDS PPM				
	AERATOR (MLSS)		REAIR OR RETURN SLUDGE	
DATE	TOT	FIX	TOT	FIX
87	88	89	90	91
22	5000			
25	4800			
30	3380			

RECEIVING WATER 5 DAY BOD		
DATE	DOWN STREAM	UP STREAM
92	93	94
	NOT	
	RUN	

RAW SLUDGE				
DATE	TOTAL SOLIDS	% SOLIDS	FIXED SOLIDS	% VOL SOLIDS
95	96	97	98	99
9	2.6	2.6	0.5	80

100. APPROXIMATE AVERAGE VOLUME OF STREAM PAST OUTFALL Not Computed CUBIC FEET/SECOND.
101. DILUTION FACTOR Not Computed
102. VISUAL STREAM CONDITIONS O.K.
108 Classification of Water I, II, III, IV UNKNOWN

(SECTION C)

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DIVISION OF HEALTH
Post Office Box [illegible] Jacksonville, Florida [illegible]

Dissolved Oxygen					pH			Recirculation					
Raw	Secondary Effluent	Pond & Final Eff.	Downstream	Upstream	Raw	Primary Effluent	Final Effluent	To Trickling Filter	Return Sludge (Act. Sludge)	Air Supplied	Settleable Solids % 30 Minutes	Remarks	Da
24	25	26	27	28	29	30	31	32	33	34	35	36	37
0.6	0.8	2.1	NOT RUN	NOT RUN						2.2	22		1
1.0	0.9	2.8							NOT CALCULATED AT THIS TIME (1 OF 2 PUMPS OPR'D AT 75% CAPACITY)		28	1) NO SLUDGE	2
					PH METER NOT FUNCTIONING PROPERLY							ADDED OR WITH-	3
												DRAWN FROM	4
												ANEROBIC DI-	5
1.0	4.2	1.7									9	GESTOR	6
0.9	1.7	1.0									26		7
1.1	3.1	2.0									40	2) ROUTINE MON-	8
1.0	0.7	2.3									20	THLY ANALYSIS	9
								NOT APPLICABLE			21	RAN BY:	10
											21	POLLUTION	11
												CONTROL	12
1.0	0.8	3.2									40	CONSULTANTS	13
1.0	0.8	2.7									42		14
1.0	0.8	2.5									52		15
													16
0.8	0.2	1.2			7.1	7.3	7.1				29		17
3	0.7	3.4	2.5		7.4	7.4	7.0				38		18
0.4	0.3	1.9	1.8		7.4	7.3	7.2				26		19
0.5	0.3	2.3	2.2		7.4	7.4	7.0				22		20
0.5	4.6	2.0	2.3		7.4	7.4	7.1				31		21
0.5	0.6	2.0	2.0		7.4	7.4	7.1				31		22
—							—				42		23
—							—				43		24
0.5	0.4	2.0	2.4										25
													26
2.5	0.6	2.2	2.0		7.4	7.4	7.1				29		27
3.0	0.5	2.5	2.5		7.4	7.5	7.0				27		28
3.3	0.3	2.5	2.5		7.4	7.6	7.0				21		29
2.5	0.5	2.5	2.5		7.4	7.3	7.0				22		30
2.8	0.6	2.0	2.3		7.4	7.3	7.0				19		31
-	-	-	-		-	-	-			2.2	-		Tot
1.3	0.9	2.2	2.3		7.4	7.4	7.1			2.2	29		Avg

44. General Comments, Operating problems or assistance desired

① 64003 G.P.D. RAW SLUDGE HAULED VIA TANK TRUCK TO CITY OF MIAMI

② ADDED TO 4TH AERATOR BEING USED AS AN AEROBIC DIGESTER; VOLUME NOT CALCULATED

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DATA AS SHOWN IN THIS REPORT ARE ACCURATE AND IN ACCORDANCE WITH ACTUAL FINDINGS.

Operator and Certificate

CLASS A, 1968

(SECTION Ba)

MR. MISHOE: That's all I have.

MR. PATTON: I have one question. Who owns the spur canal you refer to, Mr. Mishoe?

MR. MISHOE: The company.

MR. TRAINA: Mr. Mishoe, I don't know whether you heard the comments as we opened up by Mr. Thoman regarding the scheme here. The proposal that you have made in the event of breakdown of the system, how would you propose to dispose of the effluent at that point?

MR. MISHOE: We stated there is an emergency spillway in the earthen dam which would go into the canal. But we would not be putting fills under any circumstances, I doubt seriously, less than a 90 percent removed BOD. And our effluent is almost consistently less than 25 ppm BOD suspended solids.

MR. TRAINA: Any biological system, of course, can break down. So we need a valve somehow to take care of that.

MR. MISHOE: We could take it across the canal and apply the rules, but they dump it into the canal, too.

MR. TRAINA: You see a plan that you proposed, and it appears to be, to have some merit compatible with having a deep well system to dispose of effluents first on an interim basis and finally in the ultimate scheme of things as a safety valve? Is this a plan that you propose compatible with a system like that?

MR. MISHOE: With a deep well safety system as a safety valve?

MR. TRAINA: Yes.

MR. MISHOE: Yes, I think it would be. I am an operator, I am not a geologist, or I am not an engineer. And I couldn't at this particular time evaluate whether a deep well --

MR. TRAINA: I recognize that. What I am getting at is one could proceed along with another plan. If you proceed with this, it wouldn't necessarily preclude looking at, as we have heard testimony here, a deep well injection system.

MR. MISHOE: No. I agree with that.

MR. WHITE: Any other comments?

(No response.)

Mr. Redford.

MR. REDFORD: The next speaker will be Paul Leach, President of Environmental Consultants, North Miami.

MR. TRAINA: While you are waiting, Vince, you mentioned this meeting of July 8. I have got it for July 15.

PAUL W. LEACH

PRESIDENT, ENVIRONMENTAL CONSULTANTS

NORTH MIAMI, FLORIDA

MR. LEACH: Mr. Chairman, conferees, my name is Paul Leach. I am here representing Sasnett Engineering and Associates, to submit to you an alternative proposal, alternative plan, to the Master Plan presented, Interim Master Plan presented, by Dade County.

It is our feeling that this Interim Master Plan has serious flaws and consequences from its implementation could be disastrous to the environment of Dade County. We submit this environmental study plan to you for your consideration and would appreciate your comments on the matter and possible investigation so it may be implemented sometime in the future.

We have a study team together. The names of many of these study team members are there. Some of them are utmost experts in the field.

Dr. Walter Lynn, for instance, from Cornell University, is one of the well-known experts in the field, wastewater environmental engineering.

We would ask you to look at this, seriously consider it, and consider the possibilities raised there of a complete recharge of all adequately treated wastewater.

Thank you.

MR. WHITE: Thank you, Mr. Leach.

Paul W. Leach

Any comments by the conferees?

(No response.)

Thank you.

(The Regional Environmental Study Plan follows:)

REGIONAL ENVIRONMENTAL STUDY PLAN

PROPOSAL FOR
THE ELIMINATION OF WATER POLLUTION
DADE COUNTY, FLORIDA

PHASE NO. I

SPECIFIC PROPOSAL AS SUBMITTED BY:
RICHARD "DICK" STONE
SECRETARY OF STATE, FLORIDA

PREPARED BY:
SASNETT ENGINEERING, INC.
AND ASSOCIATES

DUPONT PLAZA CENTER BUILDING, MIAMI FLORIDA

ORGANIZATION OF DISCIPLINES
DIRECTOR OF STUDIES
MR. JOHN K. SASNETT, P.E.

DR. EUGENE F. CORCORAN	DR. ARNOLD PERLMUTTER
DR. BEHRAM KURSUNOGLU	DR. DOUGLAS B. SEBA
DR. WALTER R. LYNN	DR. RILEY SMITH
DR. H.A.B. WISEMAN	DR. DAVID D. WOODBRIDGE

MR. ARTHUR MARSHALL

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DR. H. A. B. WISEMAN
PROFESSOR, ENGINEERING SCIENCE PROGRAM, BIOMEDICAL ENGINEERING, UNIVERSITY OF MIAMI, CORAL GABLES, FLORIDA.

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MASTER PLAN

DESCRIPTION & REPORT

200 M.P.D. REGIONAL TREATMENT PLANT
SCHEMATIC LAYOUT
AND
PRELIMINARY REPORT

RESUME'

DR. WALTER R. LYNN
DR. BEHRAM KURSUNOGLU
DR. ARNOLD PERLMUTTER
DR. DAVID D. WOODBRIDGE
DR. RILEY SMITH
DR. DOUGLAS B. SEBA
DR. EUGENE F. CORCORAN
DR. H. A. B. WISEMAN

SASNETT ENGINEERING, INC.
Dupont Plaza Center Building, Miami, Florida 33131 · Telephone 373 5366

Dade County Florida Master Plan for Elimination of Water Pollution of all Canals, Rivers, Biscayne Bay and the Atlantic Ocean

The Master Plan as shown on the Map of Dade County, Florida, will accomplish the following five (5) major results.

(1) Elimination of all sewage outfalls presently discharging into canals, rivers, Biscayne Bay and the Atlantic Ocean.

(2) Eliminate all existing Sewage Treatment Plants thereby doing away with odors and eyesores.

(3) All Sewage Treatment Plant sites will be converted into park areas for public use.

(4) Enable the Authorities to concentrate their efforts to stop pollution by installing additional collection systems in septic areas.

(5) Partially restore the Hydrostatic balance to stop salt water infiltration.

In general, the scheme is to install force main interceptors up the canals and rivers and down Biscayne Bay to Turkey Point. These interceptors would pick-up all sewage plant effluent lines in Dade County. All existing sewage treatment plants would be discontinued and removed and would serve as pumping stations only. By utilizing the waterways, the cost for right-of-way would be eliminated.

At Turkey Point, a 200 million gallon per day sewage treatment plant will be constructed adjacent to the Nuclear Power Plant. The sewage treatment plant will be the most modern and efficient in the world. Tertiary treatment will be installed and nuclear irradiation will be utilized for sterilization and treatment of the effluent.

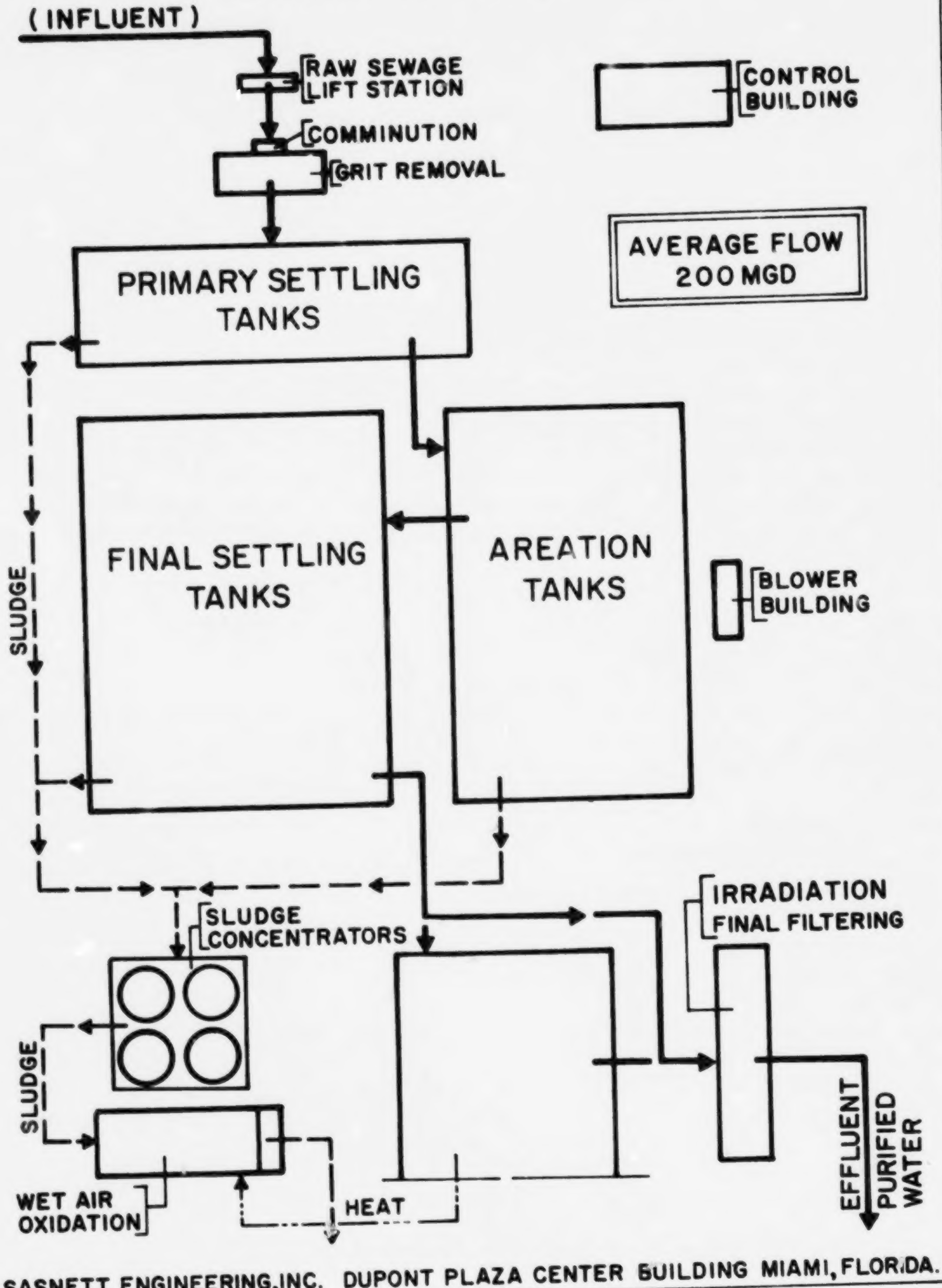
All solids will be processed in a factory supplied with all the required heat from the power plant. Products from the factory will be marketed commercially.

The effluent from the tertiary treatment will be pumped through discharge pipes up canals for a distance of approximately 45 miles and discharged into a series of controlled lakes. The addition of this water to the ground water table will hydrostatically balance and help stop salt water infiltration, which is now infiltrating at a dangerous rate.

Acting upon this Master Plan by Sasnett Engineering, Inc., is a positive approach to eliminate the rapid growth of pollution that exists in Dade County Florida.

By: ______________________________
John K. Sasnett, P.E.

REGIONAL TREATMENT PLANT SCHEMATIC LAYOUT


(INFLUENT)
RAW SEWAGE LIFT STATION
COMMINUTION
GRIT REMOVAL
CONTROL BUILDING
AVERAGE FLOW 200 MGD
PRIMARY SETTLING TANKS
FINAL SETTLING TANKS
AREATION TANKS
BLOWER BUILDING
SLUDGE
IRRADIATION
FINAL FILTERING
SLUDGE CONCENTRATORS
SLUDGE
WET AIR OXIDATION
HEAT
EFFLUENT
PURIFIED WATER

SASNETT ENGINEERING, INC. DUPONT PLAZA CENTER BUILDING MIAMI, FLORIDA.

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PRELIMINARY REPORT

DADE COUNTY REGIONAL TREATMENT PLANT - 200 M.G.D.

Our report has been based upon the average flow to the Regional Treatment Plant of 200 MGD, a peak flow of 500 MGD, a raw BOD of 200 ppm, and a raw suspended solids of 240 ppm. At the head of the treatment plant we will be requiring a raw sewage Lift Station. We would recommend that these pumps be able to handle the peak flow of 500 MGD. Five pumps should be provided, at approximately 70,000 gpm each. This would require approximately a 42" pump driven by an 1100 Hp motor. The area required for each pump would be about 15 x 15.

After the raw sewage Lift Station, the sewage would need to be comminuted. Installation of five (5), Model "A" Barminutors which would handle the peak flow of 500 MGD. They would be in 8' wide channels and have a 10' height.

Following comminution, the sewage would then flow to the grit chambers, sized for a 3 minute detention based on the peak flow of 500 MGD. Each of the five tanks to be 69' long, 30' wide, and having a 15' water depth. Each tank would have an effluent baffle width of 6'. Each grit chamber would require 730 cfm of air, and this air would be diffused by four (4) B-1 Swing diffusers with Flexofuser diffusion units.

Following grit removal, the comminuted sewage would flow to the primary settling tanks, Providing a detention of one hour on the average flow of 200 MGD, using ten (10) tanks. Each tank would be 186' long, 60' wide and having a 10' average water depth. We would assume approximately 30% removal of BOD in the primary tanks, thus the BOD to the aeration system would be 233,000# per day.

Providing a Step Aeration or Contact Stabilization process and utilizing a loading of 75# of BOD per 1000 cu. ft. of aeration tank capacity, ten (10) tanks. Each tank would have two passes, and each pass would be 352' long, 30' wide and have a 15' water depth. The air required for the aeration tanks would be 162,000 cfm utilizing Flexofuser diffusion units. Each pass would require twelve (12) Swing diffusers to diffuse the air into the tanks.

After aeration, the mixed liquor would flow to the final settling tanks. These would have a detention of 2.5 hours at the average design flow. Ten (10) tanks, 465' long, 60' wide and having a 10' water depth. The sludge would have to be removed at either the middle of the tanks, or at the third points such that the return time would not be too excessive.

Regarding the blowers, we have calculated the total air requirement to be 168,250 cfm. This includes aeration tanks, grit removal and channel aeration. We would use five (5) blowers having a capacity of 42,000 cfm at 8.0 psi. They would be Roots OIB single stage centrifugal blowers, each driven by a 1500 Hp motor. Four of the units will normally be on line and one will serve as a standby. The area required for each blower, exclusive of the air filters, would be approximately 40 x 25.

For sludge handling, we can use gravity concentration of the primary sludge and waste activated sludge. Assuming 60% removal of suspended solids in the primary tanks, and a concentration of 4%, the flow of primary sludge would be 0.72 MGD. Also, this will be a total of 240,000# of solids per day. Assuming a 63% conversion of BOD in the aeration system to sludge solids, and a wasting of the sludge at the end of the second pass, at a concentration of 1500 ppm, the flow of waste activated sludge would be 11.75 MGD. This represents a total of 147,000# of waste activated sludge per day. Thus the total solids to the concentrator will be 387,000# per day with a flow of 12.47 MGD. Using a solids loading of 20# per sq. ft. per day, we would use four (4) tanks, 80' in diameter and having a 12' average water depth. This gravity concentrator should be able to concentrate the sludge to approximately 2-1/2% or a flow of 1.86 MGD going to the remainder of the sludge handling facilities.

Five (5) primary sludge pumps, having a capacity of 1200 gpm at 30' head, at 1150 RPM, driven by a 15 Hp motor would be satisfactory. The area required for each of these pumps would be approximately 5 x 5. In sizing these pumps, we have assumed pumping of primary sludge four times a day for 30 minutes each time.

Regarding the waste activated sludge pumps, we would use six. Each pump would have a capacity of 1630 gpm at approximately a 20' head, having a maximum speed of 870 RPM and driven by a 15 HP variable speed drive, would be required. The area for each pump would be approximately 6 x 6. We would assume a continuous wasting rate for the waste activated sludge.

Regarding the return sludge pumps, they should provide for a maximum return of 75%. For this, we would recommend five (5) pumps, each having a capacity of 21,000 gpm, at approximately 25' head. A 24" pump would be required and it will have to be driven by a 200 Hp variable speed drive. The area required for each one of these pumps at approximately 11 x 11.

The concentrated sludge pumps will pump the concentrated sludge to the wet air oxidation process for ultimate handling. Assuming a constant pumping rate, three pumps, each having a capacity of 645 gpm at approximately 25' would be used. Also, pumps having a maximum speed of 1150 RPM and driven by 7.5 Hp variable speed drives would be used. The area required for these pumps is approximately 4 x 4. It will also be necessary to provide three of these units to pump the sludge from the wet air oxidation unit to the centrifuges.

For sludge handling, the wet air oxidation un it similar to what was used at the West-Southwest Chicago Treatment Plant, would be used. With the processing approximately 193.5# of solids per day, with a 69% volatile ratio, concentration will be approximately 2-1/2%. A building approximately 25,000 sq. ft. will be required.

Following wet air oxidation, it will be necessary to thicken the sludge to ultimate disposal. Five (5) centrifuges, each driven by 75 Hp motors would be used.

IRRADIATOR DESIGN CONDITIONS

Average Flow = 200 MGD
Peak Flow = 500 MGD
30 Irradiators (30x30x20 Ft.)

IRRADIATOR ACCOMPLISHMENT

1. Reduce organic suspended solids by 75%
2. Degradate detergents by 90 to 97%
3. Kill many bacteria (99.9% fecal coliform kill)
4. Kill many viruses
5. Produce effluent that does not support an algae bloom.
6. Reduce pesticides and herbicides

FILTER DESIGN

60 Diatom Tanks
Filter elements area = 6000,000 sq. ft.
Filter elements area per tank = 10,000 sq. ft.
Surface area per element = 200 sq. ft.
Element size = 10 ft. x 10 ft.

AREA REQUIRED

Approximately 5 acre total.

Rapid sand filters may be substituted for the diatom filters, however, better than 15 acres would be required for filter area.

SASNETT ENGINEERING, INC.

John K. Sasnett, P.E.

Mr. John K. Sasnett, P.E.
Sasnett Engineering, Inc.
821 Dupont Plaza Center
Miami, Florida 33131

Dear Mr. Sasnett:

Upon examination of your preliminary plan for the recovery, treatment and recycling of Dade County sewage, we are all greatly impressed by its ingenuity and boldness. Particularly striking are the potential for the drastic reduction of water pollution in this region, the eventual rehabilitation of the off-shore waters, and the comprehensiveness of the plan, i.e. the unity of the system. We believe that this plan will be an inspiration to urban communities everywhere and that every effort should be made to implement it, based first, of course, on serious scientific and technical investigations.

As a contribution to such a program, we would like to delineate several suggestions that pertain to its efficacy and eventual implementation. Bear in mind that these remarks are based on preliminary observations and should be taken in that spirit. Specific recommendations can be made only after a detailed study of the revelevant factors such as seasonal variations and socio-ecological implications. The data accumulated should include physical, geological, biological and chemical norms based upon extensive field observations.

First of all, it would appear that because of the rather far-flung nature of the network of conduits and pumping stations, and of the large volumes of fluids transported per unit time, a primary objective should be a complete monitoring of the system at all critical points and the transmission of all relevant data to a main control center (probably at the treatment site). The monitoring would, of course, include the chemical and physical testing of the sewage at all stages of treatment, with the instantaneous availability of the data. This center would be monitored round the clock, and would be characterized by large visual displays indicating the state of the system al all times. Obviously, this necessitates that all the data gathered be transmitted to this station electromagnetically and processed by a computer. The latter, which could serve other functions in this system, would be of the compact variety available from several manufacturers and suited to specialized tasks. It is further understood that all the devices necessary to perform the monitoring and control tasks are readily available as standard items from the advanced instrumentation industry.

More specifically, we propose that the following studies be given strong consideration in determining the feasibility of this project. It will become clear that all of these are interdisciplinary and interdependent.

1. A biological and physical sampling and monitoring network should be established in selected locations of the aquifer, rivers, canals, bay and ocean before design and construction are initiated and, furthermore, maintained in continuous operation after installation of the total system. This will assist in the environmental control necessary for minimization of pollution in Dade County and neighboring land and water masses. It will provide "before and after" information that would deepen our understanding (hopefully benefical) of the effect of imposing such an evidently ambitious and highly organized system upon an inhabited region of this size and upon the total physical environment. The pre-construction data will of course be a necessary input to the information bank which is pre- and co-requisite to the study in Paragraph 2.

2. A computer simulation of the model network should be initiated at the inception of the project and should continuously up-dated and modified during planning, design, construction and operation of the facility. During the planning and design stages, this analysis would contribute to decisions on, e. g. locations and sizes of pumping stations, dimensions and configurations of conduits, and locations of purified water canals and discharge lakes. During the operation stage, this simulation will be coupled to the overall monitoring and control system of the facility.

3. Implicit in Paragraph 2 is the establishment of a number of manual override control substations for perodic calibration, emergency operation and maintenance capabilities. While overall maximal automation will be the guiding philosophy, it will be necessary to provide the above-stated flexibility for reasons of safety and efficiency.

4. The previous paragraphs indicate part of the scope of the technical and scientific considerations. Perhaps it should be made explicit that the evaluation and application of the most advanced technological developments in all aspects of the operation will be important functions of the scientific and engineering advisers. The latter should of course also devote themselves to continual and critical study of the total environmental effects of the project and, when necessary, call upon the advice of other experts, wherever they may be found. It is also conceivable,

in a project of this scope, that new techniques may sometimes have to be developed in order to cope with problems.

Sincerely yours,

Behram Kursunoglu

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29 April 1971

Mr. John K. Sasnett
Sasnett Engineering, Inc.
Dupont Plaza Center Building
Miami, Florida 33131

Dear Mr. Sasnett:

You have asked my opinion as to the feasibility of the "Proposed Master Plan For The Elimination Of Water Pollution In Dade County, Florida." As I see it, this is a dramatic solution to a very tough problem!

Frankly, I can see no significant weakness in the proposal as submitted to me. In my dual role of geologist and oceanographer, and in my advisory capacity as environmentalist, I cannot see where the proposed plan could degrade the environment in any way. On the contrary, it seems obvious that the status of the environment will be up-graded tremendously.

Certainly no hazards to navigation of any waters, be they commercial boat ways or recreational boat channels, will be posed by non-reactive pipes placed on the bottoms of the waterways. The fluids inside the pipes will be adequately protected from escape to ambient canal or estuarine waters by the nature of the pipes.

The stable character of the lime-rock sediments at or beneath the bottoms of the canals, bays, or estuarine areas is well known--the Miami Oolite and the Tamiami formations are not subject to swelling or disruptions as would clay-like rocks.

From all aspects--economic, ecological, and recreational--I feel that this is a workable proposal. The only problem which I can foresee is the possibility of political delay. That too, may be overcome by the enthusiastic presentation (communication) to the various governing bodies and to the people of Dade County via the newspapers and television and radio media.

"Best of luck" to you!

Sincerely Yours,

Riley S Smith, Jr.

Riley S. Smith, Jr.

STRESS ANALYSIS VIBRATIONS METALLURGY MACHINE DESIGN MATERIALS TESTING SERVICE

H. A. B. WISEMAN, PH.D.
REGISTERED PROFESSIONAL ENGINEER
CONSULTANT ENGINEER

PHONE 666-0354
5975 S.W. 74th Ave.
Miami, Florida 33143

May 4, 1971

Mr. John Sasnett
Sasnett Engineering, Inc.
Dupont Plaza Center 821
Mimai, Florida 33131

Dear Mr. Sasnett:

Pursuant to our meeting and discussion of April 30, 1971, on the development of a master plan for the control and abatement of pollution for Dade County, I have studied the materials and consider this proposal to be one of the most farsighted plans that I have ever reviewed. As I mentioned to you, one of the assignments to my senior design class, this semester, includes this same consideration. I hope that your plan will be brought to the public before the end of the semester so that the students might benefit further from this work.

I might comment that all of the conduit systems will be exposed to potential infringement by both fresh and salt water, should failures develop due to settlement or tree root intrusion. This occurrence with brackish or salt water could seriously inhibit the treatment processes. However, the system could be monitored for salt water intrusion and there are available self-propelled closed circuit T.V. systems that can be introduced into the conduit circuit. Thus the intrustion can be located exactly and repairs made by several methods of quick-setting cements which would control the inflow to a minimum. The original patent to such a system is held by a local Miami firm, which has done extensive work in this field throughout the world.

I hope that you will be able to go forward with this plan and wish you much success in your efforts.

Very truly yours,

H.A.B. Wiseman

H. A. B. Wiseman, Ph.D., P.E.

HW:lm

UNIVERSITY OF MIAMI
Dorothy H. and Lewis Rosenstiel
SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE

10 RICKENBACKER CAUSEWAY
MIAMI, FLORIDA 33149
(305) 350-7211
Cable: UOFMIAMI

April 30, 1971

Sasnett Engineering, Inc.
DuPont Plaza Center Building
Miami, Florida

Gentlemen:

The concept of a total waste management program as presented in this proposal is most exciting. We have reached a state in our environmental needs where our various sub-systems must be considered in their ecological whole. The problem that Dade County has with waste control is enormous and immediate. Chronic neglect has led to acute need. The problem is of such magnitude that only a unified approach can provide the impetus necessary to provide a survivable ecological balance for Dade County.

The plan so presented has such an approach. Rather than treating sewage as a local liability to be disposed of in the cheapest possible means, this plan is concerned with the overall handling of waste waters as a resource.

It is obvious that the construction of such a system will have deleterious effects on the environment. However, many of these effects will be of short duration and can be minimized by making environmental safeguards a prime consideration. Certainly, given the proper counsel in ecological matters, our present engineering technology is remarkably innovative to meet these bold challenges.

For example, in the installation of underwater pipelines, a method of controlling silt must be devised. Perhaps large plastic curtains could be hung completely around the construction area or the pipe itself could be used as a conduit to remove dredgings to a central land depot, such as Dodge Island. Similarly, a route could be determined which would have as little impact as possible on existing marine life. Considerations should also be given to possible alternate locations of the treatment facility and transmission lines, such as western Dade County using canal conduits only; and to the treatment process itself, such as liquid oxygen injection or synthetic organic polymer precipitation. Waste water, rich in organic compounds, is indeed an asset for which every reasonable effort should be made to recover its nutrient value.

One must, of course, evaluate the gains against losses when projecting a new concept. However, in environmental matters this often is neglected, to the ultimate debt of all. Clearly, the conceptual base for this plan encompasses the total ecosystem, which can be the only acceptable approach. The stress on our Dade County environment has passed a critical point. Only by massive and decisive action can there be the hope of environmental recovery.

We feel that this plan is such a move and would most definitely welcome the opportunity to work with you towards its fulfillment.

Sincerely,

Douglas B. Seba

Douglas B. Seba
Adjunct Assistant Professor

Eugene F. Corcoran

Eugene F. Corcoran
Associate Professor

Enclosure: Individual curriculum vitae

Energy Systems Incorporated

150 Wickham Road
Melbourne, Florida 32901
Telephone: 305-727-3700

April 27, 1971

Mr. Walter Purdy
Dupont Plaza Center
Suite 821
Sassnett Engineering Inc.
Miami, Florida 33131

Dear Mr. Purdy:

In reply to your request for details concerning the actual reduction in contaminants that is accomplished by irradiation and what would be the remaining contaminants in the effluent, I would like to set forth the following results that have been obtained throughout the past three years of testing. As you know, tests have been carried on with the pilot system at the University Center for Pollution Research of Florida Institute of Technology during the past three years, and that a small continuously operating commercial facility has been operating at Palmdale, Florida for nearly 14 months.

Results of testing the effluent from the above mentioned facility have shown certain definite effects preceded by the nuclear irradiation itself. The six effects of nuclear irradiation are:

1. Reduces organic suspended solids
2. Reduces detergents by 90 to 93%
3. Kills viruses
4. Kills bacteria
5. Produces effects such that the irradiated fluid does not support algae bloom
6. Reduces the concentration of parathion by as much as 30%

These effects indicate that waste liquid from industrial complexes may also be advantagously affected by irradiation. As a result of the above data, we are working on a contract with the U.S. Steel Corporation for testing the waste water from the U.S. Steel Clairiton Coke Plant and quenching water from the slag. Preliminary results from these testings show some reduction in the chlorine ion, cyanide ion, and in the sulfide ion. Besides the effects previously shown for waste water in general.

As a result of filtration following the irradiation, a perfectly clear and pure effluent has been produced. During the past year, we have not found a single fecal coliform bacteria in the effluent from the Palmdale Plant. Also, BOD of the effluent ranges from 3 to 1 ppm with a disolved oxygen concentration of 6 ppm. When the water is high in the swamp, small fish have been noticed to cluster around the outfall from the sewage plant because of the high D.O. content as compared to the 4.5 ppm content of the disolved oxygen from the receiving waters. It is also note worthly that the suspended solids are essentially removed. We have had zero suspended solids in the effluent, except at times when the filter has broken down.

It is emphasized that there is absolutly no residual radioactivity in the receiving waters. The method of treating water is identical to that used for treating cancer patients in hospitals and sterilizing sergical instruments. The reason for using cobalt-60 is that the gamma rays have energies that are great enough to interact with the molecular binding but not sufficiently large to produce a nuclear reaction, thus the viruses and bacteria are killed but there is no contamination of the fluid or material as would result by any chemical disinfectant.

I hope the above information is of the type that you desire to show the effectiveness of irradiation in assisting the process of irradiation of water for reuse. If you require any further information, please let me know immediately.

Sincerely,

Dave

Dr. David D. Woodbridge
President

DDW:gs

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by permission

PROCESS RADIATION

Application of gamma radiation to sewage treatment

by David D. Woodbridge, Leland A. Mann, and William R. Garrett

On March 10, 1970, the first continuously operating commercial nuclear sewage treatment facility went on line. After four months of continuous operation, the facility is continuing to produce a very high quality effluent. The success of this plant is the result of more than four years of planning, investigating, and testing. For two and one-half years, a pilot system has operated at the University Center for Pollution Research (UCPR) of Florida Institute of Technology (F.I.T.) in Melbourne, Florida. These systems and associated tests have shown that gamma irradiation of sewage plant effluent can greatly assist in the tremendous job of cleaning up the domestic sewage created by man.

Water is becoming critical in many areas of the world. However, man still continues to waste it. Present-day conventional sewage treatment exemplifies such wastefulness. Not only is the effluent from conventional sewage plants unfit for human use, but it pollutes or adds to the pollution of existing water resources. Excellent examples of this fact are the building moratoriums that have been effected in the northeastern part of the United States.

If sewage can be processed so that the effluent water is made suitable for human use, a multiple savings will result. Water that normally would be wasted could be immediately reused. Natural water supplies and the environment would not be contaminated. Millions lost by construction moratoriums would be saved. Utilization of gamma irradiation to properly process the sewage effluent adds the additional advantage of a tremendous peaceful use of atomic energy.

Dr. Woodbridge is president of Energy Systems, Inc., Melbourne, Fla.; he is also director of research at Florida Institute of Technology and founder and director of that Institution's University Center for Pollution Research. Professor Mann is executive vice president of Energy Systems and professor of physics at F.I.T. Mr. Garrett, a bacteriologist, is assistant to the president, Energy Systems.

Under a contract with Lykes Brothers Incorporated of Tampa, Fla., Energy Systems Inc. built and is operating the first continuously operating commercial nuclear sewage disposal plant at the Fisheating Creek Campgrounds near Palmdale, Fla. The facility consists of a wet well, used as a collection basin, a conventional extended aeration package plant, a nuclear irradiator, and a filter system. Both a primary and a polishing filter system is housed within the filter building. A block diagram of the Fisheating Creek Nuclear Sewage Disposal System is shown in Fig. 1. Numbered points on the block diagram are locations from which samples are taken for testing and are referenced in the analyses by the numbered locations.

The complete facility is shown in Fig. 2. In the lower right hand part of the picture is the wet well, which is used as a holding tank to smooth out the large fluctuations in usage typical of a campground. On top of the wet well are two pumps used as a lift station. All flow through the system from the package plant through the irradiator and until the fluid reaches the filters is by gravity. Immediately behind the wet well are the three sections of the extended aeration package plant. To the left of the package plant is the irradiator. Behind the package plant is the filter building.

The outside of the concrete irradiator shield is 14 feet by 14 feet and is 9 feet high. A 9-foot-high cyclone fence surrounds the irradiator itself; however, the rest of the disposal plant is open.

Samples Analyzed

Samples were obtained and analyzed from each of the locations shown in Fig. 1. Results of the analyses show that 99.99 percent of all coliform bacteria and 100 percent of the fecal coliform are being killed in the irradiator. During the first four months of operation, no fecal coliform have been found in the final effluent. Figure 3 shows analysis results versus locations in the system. The results are composites of the data obtained during the first four months of operation of the nuclear sewage treatment facility at Fisheating Creek Campground, near Palmdale, Florida.

The biochemical oxygen demand (BOD) is one of the standards estab-

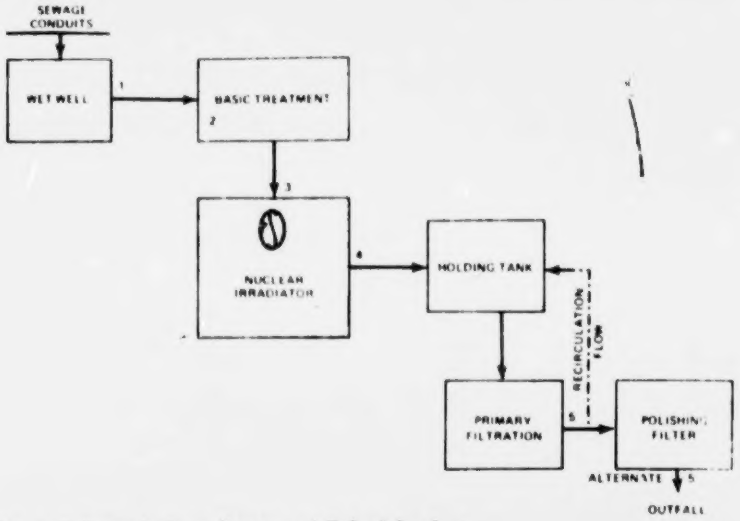

Fig. 1. Schematic flow diagram of Palmdale plant

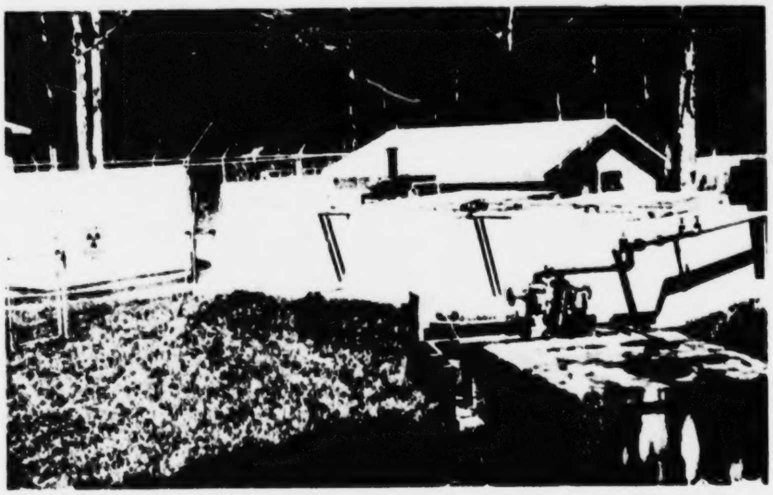

Fig. 2. Fisheating Creek nuclear sewage treatment facility

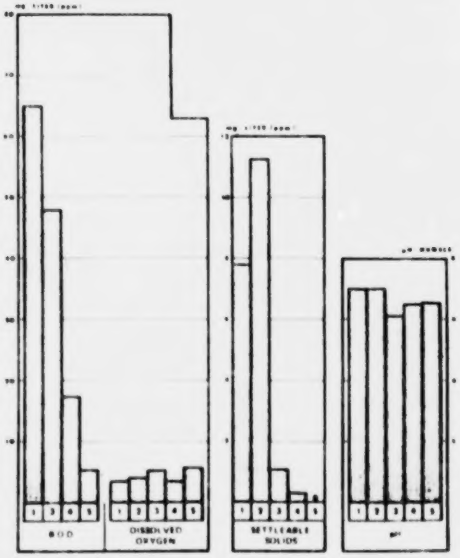

Fig. 3. Analysis averages at Palmdale plant. Number references at base of columns are keyed to analysis sampling points noted on the plant schematic. They are (1) effluent from wet well, (2) package plant (dip sample), (3) influent to irradiator, (4) effluent from irradiator, and (5) final effluent

tergents was obtained. At this same flow rate, test solutions of parathion were found to be reduced in concentration by 25 to 30 percent. At slower flow rates a reduction of 36 percent in the concentration of parathion was obtained.

Lowe *et al*[7] reported that irradiation of water results in a reduction in the dissolved oxygen. This reduction appears to result from the use of the oxygen in the formation of hydroxides, peroxides, and ozone by the gamma irradiation. Tests at the UCPR have shown that the irradiation of sewage also resulted in a decrease in the dissolved oxygen content of the fluid. Existence of the hydroxides, peroxides, and ozone assist in the bacterial kill, as well as producing oxidation of the other organic molecular structures.

System Cost

Although the increasing dangers of pollution must be faced and dealt with, the costs of any new development are major considerations. In comparing the costs of various treatment methods, the same costing considerations must be used for each system. Both capital costs and operating costs must be considered in total system cost comparisons. It should also be emphasized that one cannot obtain "clean water" for the price of "dirty water."

ESI's nuclear sewage treatment system is ready for immediate installation as an addition to an existing secondary treatment facility. The appropriate ESI system adds onto a conventional secondary sewage treatment plant to treat and upgrade the present effluent to the desired cleanliness level. Thus, all costs described here are in addition to the costs of construction or operation of a secondary type sewage disposal system.

Figure 5 shows a graph of the estimated initial (capital) construction and activation costs for facilities ranging from 10,000 gpd to 3 million gpd. The exponentially decreasing curve is the cost per thousand gallons of flow per day. As is evident from the graph of Fig. 5 the cost of cobalt-60 is a major item in the total plant cost. All cost estimates are based on material and labor costs available in Florida.

Operating costs of nuclear irradiation and filter systems have also been obtained as shown in Fig. 6. The low-

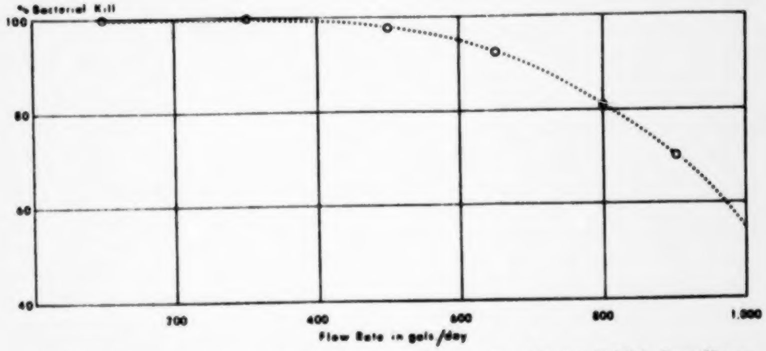

Fig. 4. Percent kill of coliform vs flow rate in Model ESI-1 Irradiator

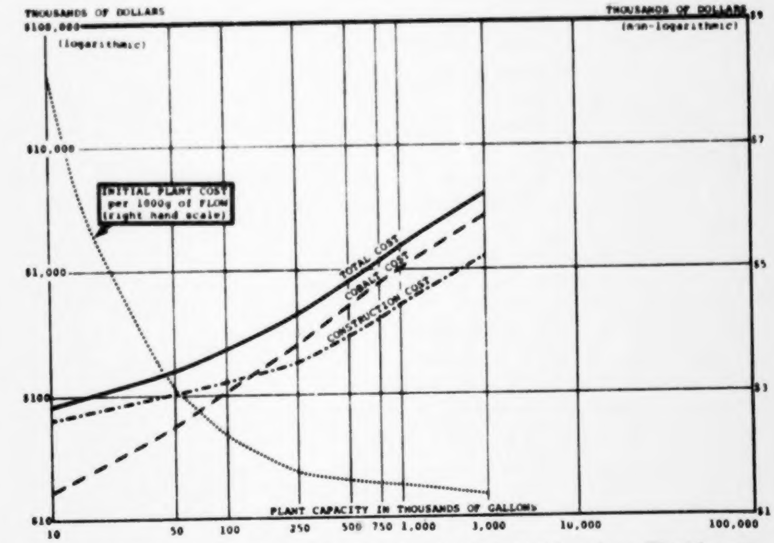

Fig. 5. Estimated initial plant costs (preliminary) (based on Florida construction costs; cobalt priced at 35 cents per curie)

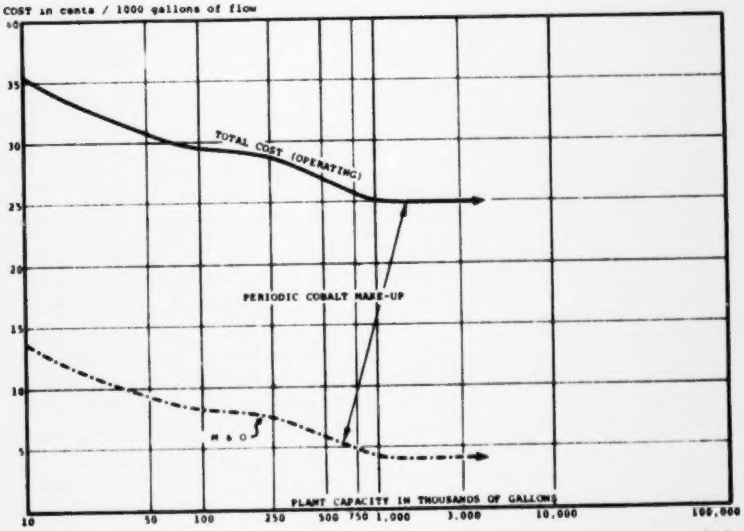

Fig. 6. Estimated operating costs—maintenance and operations plus cobalt make-up (cobalt priced at 35 cents per curie)

lished for the quality of waste water. Figure 3 shows how the BOD changes as the effluent passes through the individual processes in the system. The final effluent from the total facility contains only 6.0 milligrams per liter of BOD. This low value of BOD represents a 87.5 percent reduction of the remaining BOD left from the commercial secondary treatment facility. Even effluent directly out of the irradiator has less than 18.0 milligrams per liter of BOD, which is a 62.5 percent reduction from the secondary treatment plant effluent.

Effluent directly from the irradiator could be utilized for irrigation water. Advantages of utilizing effluent directly from the irradiator are:

- Effluent possesses no residual disinfectant that could harm or stunt growth.
- Effluent is odorless.
- Organic materials in effluent have been broken down.
- Many bacteria and viruses have been killed.
- Detergents are greatly reduced.

These advantages make a nuclear sewage processing facility desirable in parks and other camp areas where the effluent can be effectively used for irrigation.

Settleable Solids

A second important standard of sewage disposal systems is the settleable solids in the effluent. Figure 3 shows that a 96 percent reduction in settleable solids is obtained by combining the irradiator with an extended aeration system. This reduction (in mean size of the solids) in the effluent is evidently due to the combined action of the gamma rays on the molecules and the oxidation that occurs by the presence of hydroxides, peroxides, and ozone formed as a result of the irradiation. These latter substances are created by the action of gamma rays on the water molecule, which simultaneously reduced the dissolved oxygen content,[1] as is also seen in the graph in Fig. 3.

Observation of samples from the Fisheating Creek facility have shown that the production of an algae bloom is greatly retarded in the irradiated samples. Algae will grow on a piece of wood immersed in the irradiated effluent. However, if the effluent is spiked with only algae the algae will lie dormant or die. At times of high water, fish gather at the outfall from the Fisheating Creek nuclear sewage facility, probably because of the high dissolved oxygen content in the effluent.

The extended aeration package plant used at the Fisheating Creek site is rated at 10,000 gallon per day (gpd) capacity. However, under peak load conditions, flows as large as 22,000 gpd have been processed by the facility with no apparent decrease in the quality of the effluent. Thus it is possible that the addition of a nuclear irradiator and filter system to existing facilities can increase the capacity of the plant as well as "clean up" the effluent.

Effects of irradiating municipal sewage were tested before the commercial facility was started near Palmdale, Fla. Early in 1968, a pilot system for irradiating sewage was installed at the UCPR (F.I.T.). Cobalt-60 was chosen as the irradiating material, because of the energies of the emitted gamma rays, the availability, and the half-life. One of the important factors in the use of cobalt-60 to irradiate sewage is that the gamma photons produce *zero residual* radiation in the resulting effluent.[1]

Only cobalt-60 and cesium-137 possess the combined properties and availability required for utilization as a source of irradiation for the treatment of wastewater. At the present time the best substance was determined to be metallic cobalt-60, doubly encapsulated in 300 series stainless steel. Cobalt-60 was chosen because it possesses the combined characteristics of relatively high gamma energies of 1.17 Mev and 1.33 Mev that would provide desirable depth of penetration, a half-life long enough to be operationally feasible, and a cost factor that would make the system competitive.

Cesium-137 may be a serious competitor of cobalt-60 in the future. The length of operation, or half-life, is far better than that of cobalt-60. However, the energy level of the gamma photons is only about half that of cobalt-60, and other chemical, physical, and cost factors make cesium-137 less desirable at present than cobalt-60. Future production and encapsulation methods may make cesium-137 a more feasible radioactive substance than cobalt-60.

Test samples for bacteriological and chemical analysis were extracted from the beginning, intermediate, and end parts of the pilot plant in test runs at the UCPR. Samples were taken at selected time intervals throughout each test, and analysis immediately performed. All analytical techniques and tests utilized for testing samples were performed in accordance with Standard Methods.[2] Radiation effects on bacteria were investigated by using the coliform group as a test organism. This bacteriologic group was chosen because it is used as the standard indicator of fecal pollution in water.[2]

Effect of Flow Rate

Irradiation of sewage has been shown to produce as high as 99.99 percent kill of coliform bacteria.[1] Figure 4 shows the kill of the coliform bacteria as a function of the flow rate of the sewage through the ESI-1 irradiator located at the UCPR.

One of the particular advantages of the use of gamma rays in treating sewage is the lethal effect on many viruses. A great amount of data has been produced by the Atomic Energy Commission on these effects.[3-4] Of particular importance is the fact that the dosage found to be effective in killing coliform bacteria is also lethal to influenza, poliomyelitis, and other infectious viruses.

Two factors found to be critical in achieving the aforementioned kill rates are:

- *Uniform irradiation*—Each particle of water must be uniformly irradiated.
- *Effective use of irradiation*—More than 90 percent of the gamma ray energy emitted by cobalt-60 must be absorbed by the liquid if economical use of cobalt is to be obtained.

Through proprietary designs, for which ESI patent applications are pending, the above critical factors are achieved with a dosage rate on the order of 50,000 rads.

Two outstanding discoveries have been found by the testing at the pilot sewage irradiation system at the University Center for Pollution Research. These two discoveries are the degradation effect of gamma rays on detergents and the effect of the gamma rays on pesticides. At flow rates required to obtain a 99.99 percent kill of coliform bateria, a 90 to 96 percent degradation of both the biodegradable and non-biodegradable deer curve shows the maintenance and operation cost of the facility. As there are no mechanical or moving parts in the irradiation, the maintenance cost is a minimum, and operation costs are near zero. Primary costs that are related to operation are those of the periodic cobalt-60 make-up required to keep the irradiator up to the desired energy level. This make-up cost includes the purchase cost of cobalt, plus the transportation and loading costs. Thus, the top line of Fig. 6 is the total operational cost of a nuclear irradiator plus filter system addition required to produce "clean water" from the effluent of present commercial secondary sewage plants.

Total Costs

Total costs are shown in Figure 7. Capital construction and irradiator activation costs have been amortized over a 40-year period so that they may be considered on the same basis as the recurring operational cost. The accompanying table shows the total costs when the capital costs are amortized over 20-year, 30-year, and 40-year periods.

Operational cost includes the maintenance and operation of the irradiator and filter system plus the cost of periodic make-up of cobalt-60, including the cost of transportation and loading of the cobalt-60. Recycled waste can be obtained by adding a cost of 6 to 8 cents per thousand gallons of flow to the cost in the table. This is for the polishing filter.

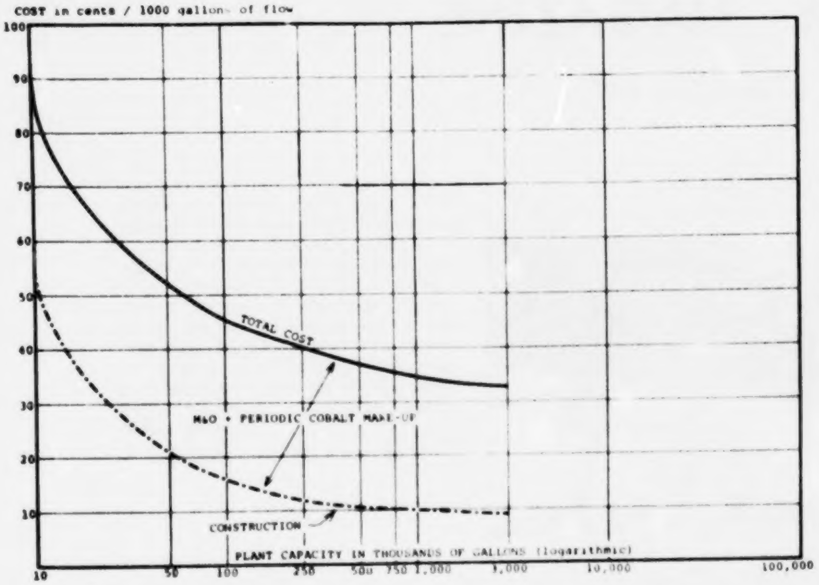

Fig. 7. Capital and total costs vs plant capacity for addition of irradiator and filter systems to conventional plants. (Capital cost amortized over 40 years; cobalt priced at 35 cents per curie)

Estimated Capital and Operating Costs in Cents per 1,000 Gallons of Flow and Amortized over 20, 30, & 40 Years

PLANT CAPACITY in GPD		AMORTIZATION PERIODS		
		20 YEARS	30 YEARS	40 YEARS
10,000	Capital	112.072	84.054	56.036
	Operation	35.600	35.600	35.600
	TOTAL	147.672	119.654	91.636
50,000	Capital	42.972	32.229	21.486
	Operation	31.100	31.100	31.100
	TOTAL	73.072	63.329	52.586
100,000	Capital	32.096	24.072	16.048
	Operation	29.500	29.500	29.500
	TOTAL	61.596	53.572	45.548
250,000	Capital	23.636	17.727	11.818
	Operation	28.800	28.800	28.800
	TOTAL	52.436	46.527	40.618
500,000	Capital	22.104	16.578	11.052
	Operation	26.900	26.900	26.900
	TOTAL	49.004	43.478	37.952
750,000	Capital	21.274	15.955	10.637
	Operation	25.900	25.900	25.900
	TOTAL	47.174	41.855	36.537
1,000,000	Capital	21.236	15.927	10.618
	Operation	25.100	25.100	25.100
	TOTAL	46.336	41.027	35.718
3,000,000	Capital	18.587	13.940	9.293
	Operation	23.500	23.500	23.500
	TOTAL	42.087	37.440	32.793

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TIME MAGAZINE

JULY 13, 1970

ENVIRONMENT

DAVID BURNETT

WOODBRIDGE & PRODUCT AT PILOT PLANT
Repulsive, unless you understand.

Sewage Tastes Good Like Water Should

Within 50 years, the U.S.'s demand for fresh water will greatly exceed its supply. Rather than wait for the great thirst, some politicians want to pipe water south from Canada's full rivers, much to the Canadians' displeasure. Others propose desalting ocean water, though the cost (about 20¢ per 1,000 gallons) is still high. Relatively speaking, by far the best bet is to recycle sewage water.

"The idea is repulsive to people who do not understand it," says one advocate of reclaimed water, Dr. Roger E. Kasperson of Clark University in Worcester, Mass. Even more repulsive is the fact that the drinking water in 144 of the 155 U.S. cities with a population of more than 25,000 now contains measurable traces of sewage effluents dumped upstream. Americans also squander vast quantities of fresh water to flush away small amounts of wastes. As a result, the nation's water is needlessly polluted at a prodigal rate.

It's Delicious. In a few arid countries like Israel and South West Africa, the people gladly drink reclaimed sewage water. When Prime Minister John Vorster of the Republic of South Africa sampled a glassful at Windhoek's treatment plant last year, he pronounced it "delicious." Americans are not yet so adaptable. President Nixon, offered a similar opportunity at the Hanover Park plant in Illinois, grimaced and said "No, thanks."

Few Americans knowingly drink recycled sewage water, but millions sooner or later imbibe the stuff, though unwittingly. In California, it flows into irrigation ditches from water-treatment plants in Pomona and San Mateo. Elsewhere, it is pumped into lakes for storage and recreation use, as in Santee and Alpine, Calif. In Washington, D.C., water reclaimed at the Blue Plains plant goes back into the seriously polluted Potomac River. In Nassau County, N.Y., it may be used to replenish underground reservoirs. Eventually, all this reclaimed water finds its way to the household tap. By then, its source has been well disguised, and like so much of the U.S.'s potable water, it is contaminated with pesticides.

Absolutely Pure. Unfortunately, most existing U.S. water-treatment plants have serious drawbacks. They either produce water loaded with organic nutrients that soon add to water-pollution problems, or else involve as many as three separate—and extremely expensive—stages of treatment. Sensing profit in this inefficiency, a handful of companies, including Calgon and the Linde Division of Union Carbide, have developed competitive systems. Two civil engineers at New York University, Alan H. Molof and Matthew M. Zuckerman, tested their method at a $69,962 pilot plant in New Rochelle, N.Y. They send sewage through an alkaline solution that breaks down large organic molecules. Then all the small molecules are adsorbed on activated carbon, a purifying material used in cigarette filters and gas masks. "Though the process needs to be perfected, it promises to be at least one-third cheaper than tertiary treatment," says Dr. Molof. "But its biggest advantage is that it produces absolutely clean water—not less-dirty water."

Most recently, a group of scientists from the Florida Institute of Technology built an $86,000 treatment plant at Fisheating Creek in southern Florida. Radioactive cobalt irradiates the sewage without any danger of contamination. Gamma rays kill all coliform bacteria in the water, which is then filtered and scrubbed clean of particles. The result is as clear, pure and tasteless as distilled water. Dr. David R. Woodbridge, a physicist and one of the method's inventors, says that the process can be used in medium-sized cities and would cost householders about $3.50 per month more than they are now paying for fresh water. If necessary, tasty additives could be introduced. Presumably, a dash of DDT and a cup of raw sewage would bring the clean water to present U.S. standards.

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SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING
Cornell University
HOLLISTER HALL, ITHACA, N.Y. 14850

February 5, 1971

Mr. John K. Sasnett
Sasnett Engineering, Inc.
Dupont Plaza Center Building
Miami, Florida 33131

Dear Mr. Sasnett:

Thank you for sending me the descriptive material on the "Proposed Master Plan for elimination of water pollution in Dade County, Florida". The general approach which is proposed by your Company is clearly an imaginative and ambitious program and one worthy of serious consideration. Clearly there are many questions which will have to be studied in detail in order to assess the benefits and costs of this proposed system in ecological, health, engineering, and social terms. In order to assess whether such a project is to be successful one must not only look at direct effects but higher order effects as well.

I know that you are fully aware of the need to give this proposal the intensive and detailed study that it merits. Obviously, as such a study progresses it will result in modifications and improvements in the general plan as additional information, insights, and wisdom are developed in regard to the specific Dade County situation are welded to an overall view of the problem.

I certainly support your efforts to detail this bold and imaginative plan. Clearly significant steps such as these will be required to enhance and preserve the natural beauties and resources of this important area of South Florida.

Sincerely yours,

Walter R. Lynn

Walter R. Lynn
Professor and Director

WRL:gs

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April 30, 1971

Sasnett Engineering Inc.
DuPont Plaza Center - Suite 821
Miami, Florida 33131

Attention: Mr. John K. Sasnett

RE: Master Plan for the Elimination of
Water Pollution
Dade County, Florida
Specific Proposal as Presented by
Richard Stone
Secretary of State, Florida

Gentlemen:

As the Manufacturers Representative for Chicago Pump Company, manufacturers of sewage treatment equipment, the writer has reviewed subject report.

We feel that the proposed design of the sewage treatment plant represents the latest technological advances relative to sewage treatment plant design, and that this plant, when constructed, will produce a quality of effluent that will be acceptable to the State of Florida and local regulating authorities.

The plant design is conservative relative to BOD loading, and flow, and provisions have been made in the plant layout to provide for full treatment, including tertiary treatment and on site sludge disposal.

When constructed and placed into operation, this plant would be one of the most modern and functional sewage treatment plants in the world.

SEWAGE AND WASTE DISPOSAL EQUIPMENT • BUILDING TRADES AND INDUSTRIAL PUMPS

We feel the overall scheme for collection, transmission and treatment, and final disposal represents a very progressive step forward relative to the elimination of water pollution in Dade County,Florida.

Very truly,

CHICAGO PUMP COMPANY

John A. Dacy

John A. Dacy
Representative

Cc: Secretary of State's Office
Enviromental Service
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Attention: Mr. Nicolas Leischan

JAD:lkw

BIOGRAPHY

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Degrees

B.S., Chemistry,
North Dakota Agricultural College, 1940.
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Dissertation: Quantitative studies of organic matter and associated biochromes in marine sediments.

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Ship Activation Officer,
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Sigma Xi.
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American Chemical Society.
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CORAL GABLES, FLORIDA 33124

CENTER FOR
THEORETICAL STUDIES

February 15, 1971

Sasnett Engineering, Inc.
DuPont Plaza Center
Miami, Florida

Dear Sirs:

In response to your inquiry, I wish to indicate that I shall be pleased to serve as consultant to your firm as the need should arise.

Enclosed is a current copy of my curriculum vitae.

Sincerely yours,

Behram Kursunoglu
Professor and Director

BK:ngh

Enclosure

APPENDIX D. CURRICULUM VITAE OF RESEARCH PARTICIPANTS

BIOGRAPHICAL SKETCH

Name	**Title**	**Birthdate**
Behram Kursunoglu	Director and Professor	March 14, 1922
Birthplace	**Present Nationality**	**Sex**
Bayburt, Turkey	Turkish-Permanent Resident	Male

Education, Institution and Location	Degree	Year Conferred
University of Edinburgh, Edinburgh	B.Sc.	1949
University of Cambridge, Cambridge	Ph.D.	1952

Honors

American Physical Society (Fellow)
American Association of University Professors
American Association of Physics Teachers
Sigma Xi
Phi Kappa Phi
Sigma Pi Sigma

Major Research Interest

Elementary Particles, Plasma Physics, Statistical Processes

Relationship to Proposed Project

Principal Investigator

Research and/or Professional Experience

1965-	Director, Center for Theoretical Studies, University of Miami
1964-	Chairman, Annual Coral Gables Conference on High Energy Physics
1962-1964	Consultant to Oak Ridge National Laboratory
1961 (Summer)	Consultant to Max Planck Institut fur Physik und Astrophysik, Munchen, Germany
1961 (Summer)	Consultant to British Atomic Energy Research Establishment Harwell, England
1958-	Professor of Physics, University of Miami
1958	Turkish Member of NATO Science Committee

Research and/or Professional Experience (cont'd)

1956-1958	Advisor to Turkish General Staff on Atomic Matters
1956-1958	Dean of the Faculty of Nuclear Sciences and Technology of Middle East Technical University Ankara
1955 (Summer)	Senior Research Fellow, Yale University
1954-1955	Visiting Professor of Physics, University of Miami
1952-1954	Research Associate, Cornell University

Invited speaker (1955-68) in numerous international conferences in U.S.A. and Europe on various topics in theoretical physics (elementary particles, plasma physics, relativity). Official Turkish delegate to the Second International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1958; official United States delegate to the International Conference of Thermonuclear Energy, Salzburg, 1961; two weeks guest lecturer of the U.S.S.R. Academy of Science at the Joint Institute for Nuclear Research, Dubna, and High Energy Physics Center, Serpukhov, July, 1968.

Publications (Selected from over 80 papers)

(This list contains some of the papers that are thought to be somewhat relevant to the proposed subject).

Correspondence in the Generalized Theory of Gravitation, Rev. Mod. Phys. 29, 412-416 (1957).

Tamm-Dancoff Methods and Nuclear Forces, Phys. Rev., 96, 1690-1701 (1954).

Proton Bremsstrahlung, Phys. Rev., 105, 1853-1864 (1957).

Relativistic Plasma, J. Nuclear Fusion, 1, No. 4 (1961).

Brownian Motion in a Magnetic Field, Phys. Rev., Vol. 132, No. 1, 21-26 (1963).

Relativistic Plasma in a Magnetic Field, Nuovo Cimento XLIII B. No. 2, p. 209 (1966).

Diffusion as a Problem of Statistical Path, Am. J. Phys., Vol. 34, No. 11, pp. 1043-1047 (1966).

A New Symmetry Group for Elementary Particles, Phys. Rev., Vol. 135, No. 3B, 761-768 (1964).

Unitary Representations of U(2,2) and Massless Fields, J. of Math Phys., Vol. 8, No. 8 (1967).

Lectures on Some New Ideas on the Dynamical Origin of Symmetries (NATO Summer Institute, Istanbul, 1966) Freeman and Co., San Francisco and London, 1967.)

Publications (cont'd)

Dynamical Theory of Hadrons and Leptons, Phys. Rev., 167, 1452 (1968).

MODERN QUANTUM THEORY, Freeman Company Publishers, San Francisco and London, 500 pp., 1962.

Theory of Relativistic Supermultiplets, I. Baryon Spectroscopy, Phys. Rev., D1, No. 4, 1115 (1970).

Theory of Relativistic Supermultiplets, II. Periodicities in Hadron Spectroscopy, Phys. Rev., Aug., D2, No. 4, 717(1970).

Periodicities in Hadron Spectroscopy, appeared in PROCEEDINGS OF THE CORAL GABLES CONFERENCE ON FUNDAMENTAL INTERACTIONS AT HIGH ENERGY, Gordon and Breach Science Publishers, Inc., New York, 1970.

CURRICULUM VITAE

NAME: Walter R. Lynn **DATE OF BIRTH:** 10/1/28 MARRIED

OCCUPATION: Professor, Department of Environmental Systems Engineering
Director, Center for Environmental Quality Management
Director, School of Civil and Environmental Engineering

ADDRESS: School of Civil and Environmental Engineering
Hollister Hall, Cornell University
Ithaca, New York 14850

EDUCATION: Bachelor of Science in Civil Engineering (1950)
University of Miami, Coral Gables, Florida

Master of Science in Sanitary Engineering (1954)
University of North Carolina, Chapel Hill, N.C.

Doctor of Philosophy (1963)
Northwestern University, Evanston, Illinois

EXPERIENCE:

1946-48 U.S. Army - Sergeant; overseas service - Korea.

1948-50 University of Miami - Student and student assistant in the Department of Civil Engineering.

1950-51 Ehly Construction Company, Miami, Fla. - Land surveyor; preliminary designs for industrial waste treatment plants; operation of industrial waste treatment plant.

1951 Rader Engineering Company, Miami, Fla. - Chief of Party, subdivision design for land development.

1951-53 University of Miami - Superintendent of sewage treatment (activated sludge treatment plant); lecturer in Civil Engineering (surveying, engineering drawing, advanced surveying, and sanitary engineering laboratory).

1953-54 University of North Carolina - Research assistant and graduate student in the Department of Sanitary Engineering, School of Public Health. (Research investigations into the effects of oxygen tension on biological sewage treatment.)

1954-55 University of Miami - Assistant Professor of Mechanical Engineering.

1955-57 University of Miami - Assistant Professor of Civil Engineering (primary teaching responsibility was undergraduate sanitary engineering courses); organized and developed short-course training programs for water, sewage and swimming pool operators Director, John Mantell Sanitary Engineering Laboratory (designed, developed and supervised construction of this laboratory which was primarily intended to augment undergraduate course work and research).

1957-58 University of Miami - (as in period 1955-57); Research Assistant Professor, Marine Laboratory (director of research investigation to determine feasible methods for measuring the BOD of bay-bottom sediments); Dade County Sewerage Research (directed study sponsored by the newly formed Metropolitan Government to collect and collate information on existing sewerage facilities in Dade County, Florida.)

Ralph B. Carter Company - Director of Research development of "new" methods of sewage, water and industrial waste treatment; improvement of proprietary treatment devices; review of plant designs submitted by consulting engineers).

Florida State Board of Education - Consultant (appointed by the Governor to investigate and recommend criteria for sewage treatment facilities in the schools of Florida).

1958-59 Northwestern University - Technological Institute Fellwo and doctoral candidate in sanitary engineering (minor subjects: systems analysis and operations research, city and regional planning). (Dissertation completed in absentia.)

1959-61 University of Miami - Associate Professor of Civil and Industrial Engineering; Principal Investigator (research study to determine design sewage flows for schools in Dade County, Florida;) Consultant (to Northwestern University for investigation into the economics of waste-water treatment).

1961 Cornell University - Associate Professor of Sanitary Engineering; Director of U.S. Public Health Service Training Grant in Application of Systems Analysis to Sanitary Engineering Problems. Program Director for Pilot Program Grant in Environmental Systems Analysis (1965).

Cornell University - Professor of Environmental Systems Engineering (1964), Director, Center for Environmental Quality Management, and Director, School of Civil and Environmental Engineering(1970).

Chairman, Ithaca Urban Renewal Agency (1965-68).
Chairman, Mayor's Citizens Advisory Committee, (1964-65).

Numerous committee assignments for Cornell University and professional societies.

REGISTRATIONS: Land Surveyor, Florida, Number 846
Sewage Treatment Plant Operator, Florida, - Class B and C

MEMBERSHIPS : American Society of Civil Engineers
American Association of University Professors
Water Pollution Control Federation
American Association for the Advancement of Science
The Institute of Management Science
Sigma Xi
American Water Works Association
Phi Kappa Phi
Operations Research Society of America

PUBLICATIONS : and Papers

"Experience with Solid Platinum Electrodes in the Determination of Dissolved Oxygen," with Daniel A. Okun, Sewage and Industrial Wastes, Vol. 27, No. 1, January, 1955, pp. 4-7.

"Preliminary Investigations in the Effect of Oxygen Tension on Biological Sewage Treatment," with Daniel A. Okun, Biological Treatment of Sewage and Industrial Wastes: Aerobic Oxidation, Vol. I, Reinhold Pub. Corp., April, 1955, pp. 192-207.

"Nomographic Solutions for the Design of Trickling Filters and Sedimentation Tanks," Public Works Magazine, Vol. 88, No. 8, August, 1957, pp. 105-107.

"Nomographic Solutions for the Design of Anaerobic Digestion Equipment," Public Works Magazine, Vol. 88, No. 10, October, 1957, pp. 104-107.

"The Pollution Study of Biscayne Bay," with J.K. McNulty -- paper presented to a joint meeting of the Florida AWWA and WPCF, October, 1957.

"Motivation in Research" - a paper presented at the Southeastern Meeting of the ASEE, April, 1958.

"The Dyadic Computation of a Generalized Network Model of a Sewage Treatment System," with A. Charnes, Office of Naval Research Memorandum No. 19, Northwestern University, October, 1959.

"The Ecological Effects of Sewage in Biscayne Bay: Oxygen Demand and Organic Carbon Determinations," with W.T. Yang, Bulletin of Marine Science of the Gulf and Caribbean, Vol. 10, No. 4, December, 1960, pp. 491-509.

"Systems Analysis for Planning Waste Water Treatment Plants," with J.A. Logan and A.Charnes, *Journal of the Water Pollution Control Federation*, Vol. 34, No. 6, June, 1962, pp. 565-581.

"An Analysis of the Economics of Wastewater Treatment," with J.A. Logan, W.D. Hatfield and G.S. Russell, *Journal of the Water Pollution Control Federation*, Vol. 34, No. 9, September, 1962, pp. 860-882.

Systems Analysis Applications, with H.D. Block (Ithaca: Cornell University, Water Resources Center, July, 1963).

"Systems Analysis for Solid Waste Disposal," *Proceedings National Conference on Solid Waste Research*, APWA Research Foundation, December, 1963, pp. 69-74.

"Digital Computers and Environmental Control," with G.P. Fisher, *Journal of Professional Practice, ASCE*, Vol. 19, No. PP1, Proc. Paper 3749, January, 1964, pp. 15-20.

"Analysis of Sewage Treatment Systems by Simulation," with M.M. Montgomery, *Journal of the Sanitary Engineering Division, ASCE*, Vol. 90, No. SA1, Proc. Paper 3807, February, 1964, pp. 73-97.

"Stage Development of Wastewater Treatment Works," *Journal of the Water Pollution Control Federation*, Vol. 36, No. 6, June, 1964, pp. 722-751.

"A Review of the Literature of 1963 on Wastewater and Water Pollution Control: Systems Analysis," Part III, *Journal of the Water Pollution Control Federation*, Vol. 36, No. 7, July, 1964, pp. 851-852.

"A Mathematical Model for Flood Risk Evaluation," with R.M. Shane, *Journal of the Hydraulics Division, ASCE*, Vol. 90, No. HY6, Proc. Paper 4119, November, 1964, pp. 1-20.

"Bioxidation Kinetics and a Second-Order Equation for Describing the BOD Reaction," with C. S. ReVelle and M. Rivera, *Journal of Water Pollution Control Federation*, Vol. 37, No. 12, December, 1965 pp. 1679-1692.

"A Review of the Literature of 1964 on Wastewater and Water Pollution Control: Systems Analysis," Part III, *Journal of the Water Pollution Control Federation*, Vol. 37, No. 7, July, 1965, pp. 975-979.

"Mathematical Model for Flood Risk Evaluations - A Discussion," with R. M. Shane, Jr. of the Hydraulics Division, ASCE, Vol. 92, No. HY2, March, 1966, pp. 346-348.

"A Review of the Literature of 1965 on Wastewater and Water Pollution Control: Systems Analysis." Part III. Journal of the Water Pollution Control Federation, Vol. 38, No. 7, July, 1966, pp. 1128-1130.

"Probabilistic Models for Predicting Stream Quality," with D. P. Loucks, Water Resources Research, Vol. 2, No. 3, September, 1966.

"The Optimal Allocation of Stream Dissolved Oxygen Resources." With J. C. Liebman, Water Resources Research, Vol. 2, No. 3, September, 1966.

" Application of Systems Analysis to Problems in Water and Wastewater Treatment," Journal American Water Works Association, Vol. 58, No. 6, June, 1966, PPR 651-656.

"Discussion - Mathematical Model for Water Pollution Control" (with L. M. Falkson), Sanitary Engineering Div., ASCE, Vol. 93, SA2, April, 1967, pp. 43-44.

"A Management Model for Water Quality Control," with C.S. Revelle and D.P. Loucks, Journal Water Pollution Control Federation, Vol. 39, No. 7, July, 1967, pp. 1164-1183.

"Mathematical Models for the Economic Allocation of Tuberculosis Control Activities in Developing Nations," with C.S. ReVelle and F. Feldmann, American Review of Respiratory Disease, Vol. 96, No. 5, November, 1967, pp. 893-909.

"Linear Programming Models for Water Pollution Control," with D.P. Loucks and C.S. ReVelle, Journal of the Institute of Management Sciences, Vol. 14, No. 4, December, 1967, pp. B-166 - B-181.

"Systems Analysis for the Civil Sector," WORC Newsletter, Vol. 7, No. 6, February, 1968, pp. 4-5.

"Environmental Health Decision-Making," with Dwight Metzler, Journal Water Pollution Control Federation, Vol. 40, No. 7, July, 1968.

"Technology and Public Policy Decision-Making", Cornell Univ.: Center for Environmental Quality Management, Report 1004, May, 1968 and Proc. Water Resources Planning Conf. (Boston, Mass.: 1968), 62-72.

"Workshop on Model Methodology for Health Planning, with Particular Reference to Tuberculosis" (With C. S. ReVelle), American Review of Respiratory Disease, Vol. 98, November, 1968, pp. 687-691.

"Systems Analysis of a Host-Parasite Interaction", (With L. Ratcliffe, H. M. Taylor & J. H. Whitlock), Parasitology, Vol. 59, pp. 649-661.

"An Optimization Model of Tuberculosis Epidemiology" (With C. S. ReVelle and F. Feldmann), Management Science, Vol. 16, No. 4, December 1969, pp. 190-211.

"Systems Analysis Approach to Public Health", Chapter 7: Human Ecology and Public Health (Macmillan Press: New York), 1969.

"Dimensions of the Problems of the Environment" - New Priorities Congressional Conference on the Environment (Wash., D. C. - Oct. 24-25, 1969), Center for Environmental Quality Management Report No. 1016.

"A National Program to Strengthen and Coordinate Environmental Research") With R. Bowers, P. Hohenberg, G. Likens, D. & M. Nelkin), July, 1970, Program on Science, Technology and Society, Report #5.

"The Recycle of Auto Hulks, Vol. I", Cornell University, Center for Environmental Quality Management, Report No. 1025, November, 1970.

"Environmental Concerns and Engineering Education", New York State Office of Science and Technology, December, 1970. (In Press)

UNIVERSITY OF MIAMI
CORAL GABLES, FLORIDA 33124

CENTER FOR
THEORETICAL STUDIES

February 15, 1971

Sasnett Engineering, Inc.
DuPont Plaza Center
Miami, Florida

Deat Sirs:

In response to your inquiry, I wish to indicate that I shall be pleased to serve as consultant to your firm as the need should arise.

Enclosed is a current copy of my curriculum vitae.

Sincerely yours,

Arnold Perlmutter
Secretary of the Center and
Professor of Physics

AP:ngh

Enclosure

BIOGRAPHICAL SKETCH

Name	Title	Birthdate
Arnold Perlmutter	Professor	November 4, 1928

Birthplace	Present Nationality	Sex
Brooklyn, New York	American	Male

Education, Institution and Location	Degree	Year Conferred
University of California, Los Angeles	A.B.	1949
New York University, New York	M.S.	1951
New York University, New York	Ph.D.	1955

Honors

American Physical Society
Federation of American Scientists
Sigma Xi

Major Research Interest

Elementary Particle Physics

Relationship to Proposed Project

Faculty Associate

Research and/or Professional Experience

1954-1955	Instructor, Cooper Union, New York
1955-1956	Instructor, Brooklyn College, New York
1956-1963	Assistant Professor, University of Miami
1963-1968	Associate Professor, University of Miami
1956 (Summer)	Visiting Physicist, University of Chicago, Midway Laborator
1960 (Summer)	Visiting Physicist, University of California, Los Angeles
1961-1962	Fulbright Travel Grantee and Visiting Fellow, Instituto Nazionale Fisica Nucleare, University of Trieste
1962-1963	Israel Atomic Energy Commission Fellow, Weizmann Institute of Science
1964 (Summer)	Visiting Physicist, Brookhaven National Laboratory
1965-	Visiting Physicist and Consultant, Argonne National Lab.
1968-	Member of organizing committee for Coral Gables Conference on Physical Principles of Biological Membranes
1968-	Professor of Physics, University of Miami

Publications (Selected from over 15 papers)

Evidence for the Mesonic Decay of Heavy Hyperfragments, Phys. Letts., 4, 336-338 (1963).

An Example of Hyperfragment Decay in the π^+ Mode and Other Interactions of K^- Mesons and Hyperons in Emulsion. M. Blau, C. Carter and A. Perlmutter, Nuovo Cimento, 27, 774-785 (1963).

On the Nucleon-Antinucleon Interaction at Low Energies. M. Ceschia and A. Perlmutter, Nuovo Cimento 23, 578-593 (1964).

A Method for the Determination of the S Matrix for Scattering by a Tensor Potential. J. Cox and A. Perlmutter, Nuovo Cimento, 37, 76-87 (1965).

The Coulomb Field in $\Sigma\pi$ Production by Slow K^- Mesons in Complex Nuclei. M. Friedmann, D. Kessler, A. Levy and A. Perlmutter, Nuovo Cimento, 35, 355-376 (1965).

Symmetry Principles and Fundamental Particles - Lectures at Istanbul NATO Summer School, 1966, B. Kursunoglu and A. Perlmutter, W.H. Freem and Company (1967).

Coeditor of the High Energy Conference Proceedings (1965-1971).

Experimental Hadron Masses and the Supermultiplet Theory, appeared in the PROCEEDINGS OF THE CORAL GABLES CONFERENCE ON FUNDAMENTAL INTERACTIONS AT HIGH ENERGY, Gordon and Breach Science Publishers, Inc., 1970.

Douglas Barr Seba
P. O. Box 351
Miami, Fl 33145
305-350-7211

RESEARCH AND DEVELOPMENT

Since 1963, I have been involved in both pure and applied research, as related to oceanography. Investigated the nature and amount of volatile organic compounds in sea water and developed methods for their removal. Similarly, developed procedures for trace element detection. Also, was responsible for the development of extensive laboratory bioassays to evaluate both acute and chronic effects of pesticides on marine fauna. As Co-Principal Investigator on federal research grants, established field surveys of pesticides in deep-water samples, surface slicks, marine dust and hurricanes. Data was interpreted with emphasis on mechanisms and resulting ecological effects. Functioned in an R & D capacity for a mariculture program.

CONSULTING

I have been a Consultant to The School of Marine and Atmospheric Sciences in an oceanographic capacity, particularly on pollution problems. Also, consulted on pollution problems, particularly recovery, for small industries.

MANAGEMENT

I have been responsible for the supervision of laboratory technician personnel. Responsible for securing and administering federal research grants. As Associate Director of Marine Science Camp, was responsible for all education activities and assisted in supervision of operational functions. Also, was foreman responsible for houseboat construction.

TEACHING

I have been a graduate assistant in oceanography, with attendant teaching requirements. Instructor in oceanography in NSF program for high achievers in science in state schools. Lecturer at Marine Science Camp.

EDUCATION

B.S.	Degree.	Capital University, Columbus, Ohio. Major: Chemistry. 1963.
M.S.	Degree.	Institute of Marine Sciences, University of Miami, Coral Gables, Florida. Major: Marine Sciences. 1968.
Ph.D.	Degree.	School of Marine and Atmospheric Sciences, University of Miami, Coral Gables, Florida. Major: Marine Sciences. 1970.

PERSONAL

Age 29, single. Draft Status: 1-Y. Active member, professional organizations and church. Extensive travel experience, including research ships and small aircraft. Hobbies: Private flying, boating, skin-diving and music.

PUBLICATIONS

Corcoran, E. F., J. F. Corwin and D. B. Seba. 1967.
Gas Chromatographic Analysis of Chlordane by Head Gas. Journal of American Water Works Association 59: 752-756.

Seba, Douglas B. 1968.
Head Gas Analysis of Chlorinated Pesticides in Water. Thesis. Institute of Marine Sciences, University of Miami, Coral Gables, Florida. 53pp.

Seba, Douglas B. and E. F. Corcoran. 1969.
Rapid Microdetection of Organochlorine Pesticides in Submilligram Fish Tissue Samples. Bulletin of Environmental Contamination & Toxicology 4: 297-305.

Lane, Charles E., Douglas B. Seba and W. Lee Hearn. 1970.
Possible Metabolites of Dieldrin in the Sailfin Mollie (*Poecilia latipinna*). Proceedings of the Society for Experimental Biology and Medicine 133: 1375-1377.

Seba, Douglas B. 1970.
Pesticide Bioassay: Physical/Chemical and Biological Effects of Dieldrin on Teleosts. Dissertation. School of Marine and Atmospheric Sciences, University of Miami, Coral Gables, Florida. 104pp.

Seba, Douglas B. and J. M. Prospero. 1970.
Transatlantic Movement of Chlorinated Pesticides to Barbados. Atmospheric Environment, in press.

Riley S. Smith, Jr., Ph.D.
CONSULTANT
OCEANOGRAPHY – GEOLOGY – BEACH EROSION

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PALM BEACH GARDENS, FLORIDA 33403
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RESIDENCE – [redacted] 582-0545
OFFICE – 832-9824

29 April 1971

Mr. John K. Sasnett
Sasnett Engineering, Inc.
Dupont Plaza Center Building
Miami, Florida 33131

Dear Mr. Sasnett:

Yes, I shall be pleased to join with you and the others in advancing the "Proposed Master Plan for Elimination of Water Pollution in Dade County, Florida."

Attached is a resume' of my past training and activities.

Sincerely yours,

Riley S. Smith, Jr.

Riley S. Smith, Jr.

BIOGRAPHICAL SKETCH

Name	Title	Birthdate
Riley S. Smith, Jr.	Professor and Head, Dept. of Geology & Oceanography, Palm Beach Atlantic College.	3 May 1908

Birthplace	Present Nationality	Sex
Lawton, Okla.	American	Male

Education, Institution, and Location	Degree	Year Conferred
University of Tulsa, Tulsa, Oklahoma	B.Sc.	1930
University of Tulsa, Tulsa, Oklahoma	M.Sc.	1952
University of Arizona, Tucson, Ariz.	PhD.	1957
Florida State University, Tallahassee	Post-Doctoral	1959

Honors

American Geological Society
Research Society of America (RESA)
Sigma Gamma Epsilon (Earth Sciences)
Florida Academy Science

Academic Experience

Instructor of Geology, University of Arizona, College of mines
Ass't. Professor Geology, University of Tulsa
Chairman, Dept. of Geology & Geography, Berea College
Director, Division of Earth Sciences, Texas State College, Commerce, Tex.
Director, National Science Foundation, Inservice Inst. for Teachers.
Head, Department of Earth Sciences, Rollins College.

Professional Experience-Research Experience-Other Experience

Surveyor, Engineering Department, City of Tulsa, Oklahoma
Geophysicist-Geologist, Texaco, Inc.--Petroleum and Groundwater.
Radar Watch Officer, U.S. Navy, W.W.II, U.S.S.Appalachian, Pacific Ocean.
Mining Geologist-Geophysicist, Tucson, Arizona.
Consulting Geologist--Beach Erosion and Oceanography, Florida----
Marine Geologist-Scientist, U.S.Navy Mine Defence Laboratory, Panama City.
(investigations in marine sedimentation, water clarity, turblence,etc)

Research Interests

Marine sedimentation, beach erosion, pollution of estuaries and bays, marine life protection--breeding grounds. Water pollution & contamination. Ground water geology and quality. Salt water encroachment of freshwater.

Publications (following page)

Publications

Igneous Geology of Snyder Lake Area, Wichita Mountains, Oklahoma, M.Sc. thesis, University of Tulsa, 1952.

Snyder Lake Area of U. S. Geological Survey-Oklahoma Geological Survey Map of Oklahoma, Source 57, U.S.G.S., Washington, D.C., 1954.

A Study of Uranium Deposits, With Special Reference to the South-Western States, 1954. (unpublished confidential investigation for The Apache Company, Houston, Texas).

The Occurrence of Uranium Deposits in the Chinle Area of North-Eastern Arizona, 1956. (Unpublished study made for Freeport Sulfur Company, et al, on the Navajo Reservation of Arizona and New Mexico).

A Tactical Study of Weather and Terrain In Arizona, SIG 990-2, U. S. Army Electronic Proving Grounds, Ft. Huachuca, Arizona, 1958.

The Geological Prediction of Environmental Characteristics of the Coastal Shallow Water Areas, World-Wide, 1967. U. S. Navy Mine Defence Laboratory, Panama City, Florida.

An Investigation of the Submarine Deposits of The Indian River Estuary of the Cape Canaveral Area, Florida--(not completed to date).

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DR. DAVID D. WOODBRIDGE - Director of Research

B. S.,	1949	University of Washington
M. S.,	1951	Oregon State University
Ph. D.,	1956	Oregon State University

Dr. Woodbridge started his career in research as a member of the staff in the Meteorology Department of the Massachusetts Institute of Technology, from 1949 to 1950. From 1954 to 1957 he was Assistant Professor of Physics at the Colorado School of Mines. During this period he also acted as Special Consultant, for Solar-Terrestrial Relationships, for the High Altitude Observatory of the University of Colorado. Solar-Terrestrial Research has been continued by Dr. Woodbridge under two N. S. F. grants since he joined F. I. T.. In the Fall of 1957 he joined the von Braun team at Redstone Arsenal, Alabama. The following year he became Chief of the Space Environment Branch of the Research Projects Laboratory of the Army Ballistic Missile Agency, working under Dr. Ernst Stuhlinger. During the Fall of 1957 Dr. Woodbridge organized the first optical, spectrographic, infrared re-entry measurement program which was named, "Operation Gaslight", 1957-61. In 1960 he received an "Outstanding Performance Award" from the Army for his contribution to the field of re-entry physics for the organization and direction of "Operation Gaslight." Later that same year Dr. Woodbridge became Director of Experimental Programs of the Requirements and Plans Division of the Army Rocket and Guided Missile Agency at Redstone Arsenal, Alabama. From 1958 until 1961 he was also on the staff of the Huntsville Extension Center of the University of Alabama as a Graduate Professor of Physics. Dr. Woodbridge joined Chance Vought in 1961 as Chief Scientist, where he served until 1962.

In 1962, he joined the staff of Florida Institute of Technology as Head of the Physics Department. During 1963 he also became Director of Research for the University.

Dr. Woodbridge is the author of numerous papers on both atmospheric physics and re-entry phenomena. The papers on re-entry phenomena have been published in such classified documents as the PROCEEDINGS OF IRIS, and the PROCEEDINGS OF AMRAC. He also has presented papers on re-entry phenomena and space visual conditions at international meetings such as: ACARD Meeting in Copenhagen in 1958, the Tenth International Astronautical Congress in London in 1959, and the AGARD Meeting in Paris in 1962.

For several years Dr. Woodbridge has been actively interested in science education at the secondary level. He has organized and is directing and teaching in a National Science Foundation sponsored "Cooperative College-School Science Program", for the development of research capabilities

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of both high school teachers and students. This program involves high schools in Brevard, Indian River and Orange Counties in Florida, and the Florida Institute of Technology. Presently, as a supplement to this program, he is directing a special N.S.F. Summer Institute for high school teachers and students on Research On Water Pollution. He also directed and taught in the Junior Engineers and Scientists Summer Institutes for the past four years, and was director of the 1968 Florida Talent Search Program.

In 1968 Dr. Woodbridge formed the University Center for Pollution Research of Florida Institute of Technology. Under his direction the Center has been performing measurements to determine the variations, with time and location, in both bacteriological and chemical pollution in the Indian River, its tributaries, and in the lakes of east-central Florida.

10/69 jg

PUBLICATIONS:

1. "Weather-typing Applied to Summer Frontal-Rains in Oregon", Woodbridge, D. D., and Decker, F. W., Bulletin of the American Meterological Society, Vol. 34, No. 1, p. 28-37, January 1953

2. "A Storm Analysis of the Tillamook Burn Cloudseeding Operation", Woodbridge, D. D., Bulletin of the American Meteorological Society, Vol. 36, No. 1, p. 22-36, January 1955

3. "A Possible Solar Effect of Wind Patterns at High Altitudes", Woodbridge, D. D., Pohrte, T. W., and Macdonald, N. J., Technical Report No. 4, Institute for Solar-Terrestrial Research, November 1957

4. "A Possible Relationship of Geomagnetic Storm Disturbances to 300-MB Trough Development", Woodbridge, D. D., Macdonald, N. J., and Pohrte, T. M., Journal of Meterology, Vol. 15, No. 2, p. 247-248, April 1958

5. "Geomagnetic Relationship to Upper Wind Systems (a Possible Solar-Weather Relationship)", Woodbridge, D. D., and Davis, W. C., ABMA Report No. DV-TN-68-58, July 1958

6. "Apparent Relationship Between Geomagnetic Disturbances and Changes in Atmospheric Circulation at 300 Millibars", Woodbridge, D. D., Macdonald, N. J. and Pohrte, T. W., Journal of Geophysical Research, Vol. 64, No. 3, p. 331-341, March 1959

7. "Relation of Geomagnetic Disturbances to Circulation Changes at 30,000 Foot Level", Woodbridge, D. D., Macdonald, N. J., Science, Vol. 129, No. 3349, p. 638-639, March 6, 1959

8. "Observed Winds at High Levels", Woodbridge, D. D., Bulletin of the American Meteorological Society, Vol. 40, No. 11, p. 549-553, November 1959

9. "Observation of Re-Entry of an IRBM", Woodbridge, D. D., Avonics Research, p. 113-124, Pergamon Press, 1960

10. "Measurements of Jupiter Re-Entry Radiation", Woodbridge, D. D., and Arnquist, W. N., Proceedings of Xth International Astronautical Congress, London, 1959, p. 245-253, Springer-Verlag June 1960

11. "Re-Entry Radiation From An IRBM", Woodbridge, D. D., and Arnquist, W. N., IRE Transactions of Military Electronics, Vol. MIL-5, No. 1, p. 19-25, January 1961

12. "High Altitudes Glow Measurements in Australia", Woodbridge, D. D., Proceedings in the International Symposium, Stamford Research Institute, p. 235-255, April 1961

13. "Ionospheric Water Dumping", Woodbridge, D. D., Knezek, R. A., and Temple, J. B., Vought Astronautics Division Report No. 00.35, February 5, 1962

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CURRICULUM VITAE 1970

Name: H.A.B. Wiseman
Birth: December 27, 1924, Montreal, Quebec, Canada
Citizen: Canada
Marital: Widower (one son, 18 years)

Education

B.S. in M.E., University of Saskatchewan, 1947

M.S. in M.E., Washington State University, 1949

Ph.D. in Engineering Mechanics, The Pennsylvania State University, 1954

Major: Engineering Mechanics

Minor: Metallurgy

Research and Teaching Experience

Washington State University, 1948-49: Teaching Fellow and Instructor

Pennsylvania State University, 1949-1954: Research Associate

National Research Council of Canada, 1954-55: Research Officer

University of Delaware, 1955-58: Associate Professor

University of Miami, 1958-: Professor

Scientific and Professional Societies

American Society of Mechanical Engineers
American Society for Metals
American Society for Engineering Education
National Society of Professional Engineers
Florida Engineering Society
American Society for the Advancement of Science
Society for Engineering Science (Founding Member)
American Association of University Professors
Sigma Xi (Elected)
American Society for Artificial Internal Organs (Elected)

Principal Academic Committees, University of Miami (1970)

Coordinator, Engineering Science Program
Biomedical Engineering Committee (and Faculty)
Senator, Faculty Senate
Senate Budget Committee

PUBLICATIONS

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3. Corrosion of Aluminum Alloy Rivets.
4. Fatigue of Epoxy Glass Coated Aluminum Alloy Plates.
5. Open Heart Assist Devices.
6. Piezoelectric Potentials in Human Bone.
7. Forces Transmitted to the Skull During Impact on a Motorcycle Helmeted Head.
8. Micro-deformations of a Polycrystalline Metal.

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2) Engineering-Medical Analysis of Fatal and Non-Fatal Motorcycle Accidents for Helmet Testing, Design and Evaluation. Brian D. Blackbourne,M.D., Joseph H. Davis, M.D., and H. A. B. Wiseman, Ph.D. 9th International Conference on Medical and Biological Engineering, August 23 to 27, 1971, Melbourne, Australia.

Dennis I. Carter

MR. REDFORD: The next speaker is Mr. Dennis Carter.

DENNIS I. CARTER
SPECIAL ASSISTANT
METROPOLITAN DADE COUNTY
OFFICE OF COUNTY MANAGER
MIAMI, FLORIDA

MR. CARTER: Mr. Chairman, members of the conference, my name is Dennis Carter, Special Assistant to the County Manager.

Much has been said, and I will try not to repeat what has already been put in the record. But I do want to speak on behalf of Dade County with reference to the effect of Recommendation No. 3 appearing at page 13 of the EPA report presented to you today by Mr. John Hagan.

First of all, Dade County has four contracts. One is with Miami Lakes. The city of Miami Lakes Utility is already connected to our North Dade system. And I very seriously doubt that they would be able to connect because it is my understanding that plant has been abandoned and the equipment has been stripped.

But more important, as far as Dade County is concerned, is the Myrtle Grove - Carol City transmission line which we currently have under construction at the cost of approximately $1.7 million. This is trunkline at the county's North Dade sewage treatment plant to the Coral City - Myrtle Grove line. The purpose of this line is to pick up Coral City Utility and the Myrtle Grove sewage treatment plants and convert them into pump stations.

We already have a contract with a firm named Peterson Construction Company for approximately half a million dollars to convert the Myrtle Grove sewage treatment plant into a pump station. We are already under contract. And I am not sure whether the contractor has initiated construction or not, but they certainly would be liable for breach of contract if they did not go ahead with the conversion of this sewage treatment plant into a pump station.

Of course, we also have a contract with the city of North Miami Beach to accept our sewage and treatment. And similarly we have a contract with Coral City Utilities, Miami Lakes, as I previously mentioned, and also with Community Utilities.

I think there is also a legal implication here in this respect that it is possible that if this recommendation were adopted by the conferees that the owners of these utility plants would claim they contracted with Dade County to deliver raw sewage to Dade County and that if they had to deliver treated sewage to Dade County, this would be another matter. Therefore, the contracts which we now have with them would be nil.

MR. TRAINA: Excuse me, Mr. Carter. The contract itself calls for the delivery of raw sewage. Is that written in the contract?

MR. CARTER: The contracts we have with them call for the delivery of sewage from their sewage collection system.

MR. TRAINA: Not from their treatment?

MR. CARTER: No, their sewage collection system. The interpretation of this to me would be we have contracted to accept their raw sewage, and we would treat and dispose of it through ocean aquifers.

MR. TRAINA: You have no objections to receiving it treated?

MR. CARTER: As far as the county's dollars and cents, no. But I also feel that from the standpoint of equity -- and this has been brought out by Mr. Redford and others -- I think we do have to consider this.

The question was previously raised as to how many other treatment plants, secondary treatment plants or now a lesser degree of treatment, are entitled to ocean outfalls. I submit to you the city of North Miami's treatment plant back in about 1967 was treating about 4 MGD and has discontinued secondary treatment and is doing pretreatment prior to discharge into the North Miami outfall.

Also, the city of Hialeah in the last 6 months has abandoned its Lakes & Sewell sewage treatment plant which is about 750,000 gallons a day. And six other smaller treatment plants previously owned within the city of Hialeah have also been abandoned and tied into the County of North Dade interceptor. Miami Lakes is the other one, 750,000 gallons a day.

Also, in the North Miami Beach area, the North Miami Beach Shopping Center was delivering about 100,000 gallons a day of treated sewage and discharging into State Creek Canal. This has been discontinued.

MR. TRAINA: Have those treatment plants been converted to pump stations?

MR. CARTER: Yes.

MR. TRAINA: In all cases?

MR. CARTER: Yes, sir, in all cases.

I feel it would be a great inequity to require either Myrtle Grove or Coral City or Community Utilities to continue to provide secondary treatment and on top of that pay the county's cost of treatment and disposals for ocean outfalls. Because there is no way we can segregate the sewage that comes into the line and be mixed with other raw sewage as it comes in and be treated at the central plant, Dade County, North Dade area, and by the City of Miami Virginia Key plant in the case of Community Utilities, which is connecting into the West Dade Interceptor which is tied with the City of Miami's treatment plant. I think it would be a great inequity, for instance, for the people ir Miami Lakes to have to pay a surcharge in that they have to pay for secondary treatment plus 12.5 cents/1000 gallons to Dade County for their sewage while the neighbors on the south -- namely, the city of Hialeah, Opa Lacka right to the east of them -- would only be paying 12.5 cents/1000 gallons, no treatment involved. So I think equity is a very important factor.

In addition to the fact that the county is right now constructing the Myrtle Grove transmission lines at the cost of $1.7 million, and the possibility that if this was adopted as a Recommendation and Conclusion of this conference that these utilities may take the position that we don't have to tie into you becuase our contract calls for raw sewage, and also the fact that we are, as I previously stated, under contract to convert the Myrtle Grove plant to a pump station.

I would like to make one other point if I may. And that is involving the statements that were made yesterday by the city of North Miami and North Miami Beach and again today involving the location of the Northeast Dade treatment plant at the Interama Site. The Interama Site has been approved by the Board of County Commissioners. It has been approved by the Interama Authority which is a State agency. It has also been approved by the City of Miami which holds a vendor's lien on that property. These are the only three agencies that have any jurisdiction as far as location of this plant. I don't believe this committee would have the jurisdiction as to the location of the site.

I think the level of treatment and degree of treatment and quality of treatment is all within your jurisdiction. But I think the choice of site is one between the local governments as to where they are located.

I also might state that if we did not locate at the Interama Site, we would face quite a few problems. First of all, there is no other site available in that general vicinity under single ownership. So we would be dealing with multiple ownership.

Besides that, all the other land in the general area is already zoned for high-rise development. The costs would be tremendous. We no doubt would end up in court litigation to get this land. And court litigation means delay. And as Mr. Steytler has stated to you today, talking about the North

Dade plant, if we were ready to start today, it would be October of 1974,before we would expect to be complete in operation. And that is assuming that we have the land locked in in the Interama Site and there is no further delay as far as locating the land.

MR. REDFORD: I am not speaking for the conferees nor for the State Pollution Control Board, but I certainly for my own personal peace of mind would request to Mr. Steytler, Mr. Carter, in the next 30 days that they would please not discontinue any more treatment for ocean outfalls and lower the quality of water. We may well have to go along with what is essentially lowering the quality of water coming out through the North Dade line.

I hate to see this because here was some water that was treated in Maimi Lakes and the various other places you cited. And now they are hooked up into a transmission line. And granted they are out of the inland lakes and canals and so forth, but they certainly are out in the ocean and worse than they have ever been.

MR. WHITE: What is your schedule now for providing primary treatment at the treatment plant?

MR. CARTER: Mr. Chairman, we have a North Dade plant for primary treatment completely designed, but there is no point to go forward to primary treatment on that plant if we are going to go to secondary treatment at the North Dade regional plant to be located on the Interama Site. It just doesn't make sense because if we treat the sewage, primary or secondary, at the North Dade plant, which is located to the west, and then you have raw sewage coming into the east, it has got to be treated again. So the only logical site to treat the sewage is the final point before it is disposed of which would be the Northeast Dade regional plant to be completed at Interama.

MR. WHITE: Well, obviously, much concern has been expressed over this. The conferees will have to take this into consideration and address the problem in the Conclusions and Recommendations. At this point, I can make no statement one way or the other.

I will add that it is simply the principle permitting a retrogression in the total treated wastes being discharged to the ocean no matter how. Certainly, it is a difficult one to permit. And the conferees will address it.

MR. REDFORD: I would like to make one comment on this also. As I say, I am not making any decision at this point. I am just pointing out the difficulty. You have the same thing in Virginia Key. You are going to hook up a good many plants that are now secondarily treated. You aren't doing too badly -- considerably much better than they were.

We are going to put them in Virginia Key. We will stop treatment. We will bring them into Virginia Key where they will now instead of receiving 90 percent removal, receive 75 percent removal. And this means that both major outfalls, one of which was fair, will get worse. As a matter of fact, I have been told that the 75 percent at Virginia Key, the hook-ups will probably descend to about 70 percent. So we have a further degradation of the ocean even though things may improve in the canals.

MR. CARTER: Gentlemen, I think we have to realize we are going through a transition period. We are headed towards the mandates of this conference to go to ocean outfalls. We are pressing along that line. And in doing it, there is going to be a transition period where you have a choice of which is better. Is it better to have 90 percent removal and going into inland canals or 75 percent removal as the case of Virginia Key and going into the ocean?

But we are proceeding with our sewage interceptors to pick up these sewage treatment plants. And we are planning by the end of next year to pick up two more plants -- the Westchester plant and the South End plant -- and also get them out of Snapper Creek Canal and have them discharging through the West Dade Interceptor and treatment at Virginia Key.

So I think it is a matter of choice as to whether you have 90 percent removal to inland canals and clean them up with 75 percent treatment of Virginia Key.

MR. WHITE: Well, I would like to ask one question, Mr. Carter. Who proposed and drew up the contracts which you referred to previously? I mean, is this done by your county legal department?

MR. CARTER: Well, negotiations were done through the County Manager's office with myself representing the County Manager's office with the utilities. And agreement was reached. It was reviewed by the County Manager's office as to formal legality and submitted to the County Commission for approval.

I also state, gentlemen, everything that I have stated is not without knowledge of the State and Federal agencies involved. The fact that the Myrtle Grove line, we got our HUD grant with construction of the Myrtle Grove - Coral City line with the stipulation we would provide primary treatment of the North Dade treatment plant. And we have spent some $43,000 for the primary treatment at the North Dade plant. And we could implement it, but it would be an absolute waste of money to do that because we would just have to turn around and abandon it within a few months after its completion because it would have to require secondary treatment at its most easterly point which would be the Northeast Dade plant located at the Interama Site.

MR. REDFORD: There is another gentleman in the audience, I believe, who could speak pretty much to this point -- Mr. Bird. Is he still here?

MR. LOEBL: I would like to respond.

MR. REDFORD: I am calling for Mr. Bird. I think we have heard pretty much from you on this.

Is Mr. Bird here?

Is Mr. Hart here?

Mr. Hart, was it on this subject you had some comments?

MR. PATTON: May I ask Mr. Carter one question first before Mr. Hart comes up?

I notice the contract Myrtle Grove here, the survey done of Mr. Hagan's people shows that volume flow of 1.645 MGD out of Myrtle Grove -- I don't have a copy of the previous survey, but it seems to me the flow was higher than that.

MR. CARTER: My impression is it has been about 2.25 million gallons.

MR. PATTON: I wonder why the flow is this low.

MR. CARTER: I don't know. It is about 2.25 million.

MR. REDFORD: I think Mr. Hart will know. He is one of the consulting engineers.

MR. WHITE: Before you step down, Mr. Carter, do you have any questions, Mr. Traina?

MR. TRAINA: No.

MR. WHITE: Thank you.

MR. CARTER: Thank you.

RAY L. HART

PRESIDENT

RAY L. HART & ASSOCIATES

CORAL GABLES, FLORIDA

MR. HART: My name is Ray Hart, Consulting Engineer, representing Coral City Utilities, Inc. And we are similarly caught up with this situation Dennis Carter just so well explained to you.

We have entered into the contract with the county to receive raw sewage from our system at a first capital cost including connection charges to the county and modification of our present master pumping station at the treatment plant in excess of $600,000. We presently have on the boards in my office a design for modification of the pumping station, and we expect to be in service between 6 and 8 months, depending on delivery dates of the equipment required.

If we follow Mr. Hagan's recommendation, we would have to keep that master pumping station in service, build another pumping station at an additional cost of perhaps $200,000, and operate our treatment plant at a cost in excess of $100,000 a year, pay the county their fees for service in excess of $100,000 a year. This situation would pertain for the next several years.

In real quick calculation, and don't hold me to this, but just reflect back to our consumers, we have to actually pay the bills for this in excess of $20 a year and service charges. Somebody has to pay this bill, and the consumer in the final analysis is the one who pays it.

Also, you have to go into the redundancy of a new treatment facility. We will not be able to make the January 1973, deadline for getting out of the canal.

Now, we are into the throes of a major construction program whereas the modification of our existing facility would be a relatively simple thing. That is just about the size of it.

MR. WHITE: Thank you.

Any comments, questions?

(No response.)

Thank you.

MR. REDFORD: Mr. Barden has waited quite a bit of time, Is he still here?

Mr. Barden is the Chief Planner for Dade County.

ROY BARDEN

CHIEF PLANNER, DADE COUNTY

MIAMI, FLORIDA

MR. BARDEN: Thank you, Mr. Chairman.

Don't worry, I am not going to read all these reports.

My name is Roy Barden, Chief Planner for the Metropolitan Dade County Planning Department. We would like to identify two points for you.

First, the progress on the long-range plan preparation which is referred to variously as a Master Plan for Updating the Water and Sewer Pollution, Water-Sewer Master Plan, 1961.

First, Metropolitan Dade County, following the October conference, established a planning procedure which would lead to the official updating of the 1961 Water and Sewer Master Plan, what we now call a fully-developed Master Plan, by 1972. What I would like to do, if you will bear with me just a moment, is identify first what the supplement that you have been dealing with recently is and what it is not by going through the documentation that Dade County has prepared with its consultants and the staff of Mr. Steytler, Mr. Baljet and others involved in the water pollution.

First, in October, you held your conference. And soon afterward, staff met with the staff of EPA and HUD in

Atlanta to obtain basic commitments for funding, joint Federal funding, of the planning program which will lead to the preparation of fully developed plans.

Following that, the staff consultants prepared for County Commission approval the first of the several documents which we would like to submit to the conferees for record purposes in order to clarify the relationship of the supplement, so-called amended supplement, to the total documentation in an effort to clarify what it is or is not. This is a copy of the action plan which has been adopted by the County Commission which identifies a policy and the objectives of the County Commission and the county toward meeting the conferees' original Conclusions and Recommendations and identifies the fact that an update of the 1961 Water and Sewer Master Plan would be undertaken and that we would prefer an initial application for Federal funding to HUD and to the EPA. This, we would like to submit as the direction the Dade County planning group is going to take.

MR. WHITE: Are you submitting this for the record?

MR. BARDEN: I would like to get all of the documentation in if you would let me. And then if you have questions --

MR. TRAINA: That was the same document that was prepared and included in February?

MR. BARDEN: We would like to submit it again in an effort to clarify the supplement and what it is and is not.

MR. WHITE: The same document is already in the record?

MR. BARDEN: Yes.

MR. WHITE: It is adequate to refer to. You don't have to resubmit it for the record. We take cognizance of it, and we have a verbatim copy of the second conference.

MR. BARDEN: Following a preparation of the action plan, the two, the 1961 Sewerage Plan which is represented here by this document and the 1961 water plans which are represented by these two documents, as well as a supplement which was later amended represented by this document, were prepared and transmitted to the Florida Air and Water Pollution Control Board and EPA as interim documentation or interim plan to satisfy the requirements of Title 18 (of CFR) with the understanding that these are stop-gap plans. That is, they are preliminary interim plans until interim plans were prepared by November 1 of 1971.

So the supplement itself, this document, which supplements the original 1961 Master Plan, is only a supplement and is not intended to be the master plan called for by the conference by 1971. Nor is it intended to be the fully-developed plan for water pollution abatement in Dade County. It is intended only as an interim or preliminary documentation.

MR. WHITE: We understand that, Mr. Barden.

MR. BARDEN: Then, may I submit these for the record and let you take the ones that are not included already in the record?

MR. WHITE: Let's go off the record a minute.

(Discussion off the record.)

MR. WHITE: Let's go back on the record.

Mr. Barden, would you like to restate your plan?

MR. BARDEN: I would like to submit for the record, then, the documentation that isn't available yet. And that is the schedule for the improvements called for in the amended supplement to the 1961 Master Plan.

MR. WHITE: Fine. That will be accepted in the record without objection.

(The supplement follows:)

FUNDING SCHEDULE - SOUTH DISTRICT

PROJECTS ELIGIBLE FOR FEDERAL FUNDING (PL 84-660)

Projects	EPA Offer By	Funding By	Estimated Proj. Cost	Grant Amount	Federal Funding - Fiscal Year 1971-72	1972-73	1973-74	1974-75	1975-76
A. Sewage Transmission Facilities									
1. Homestead-Florida City Sewage Transmission Systems:									
Reach No. 1, Transmission Main and Pumping Stations (2)	July '71	Oct. '72	$ 2,623,000	$ 1,443,000		$ 900,000	$ 543,000		
Reach No. 2, Transmission Main	July '71	Aug. '72	2,311,000	1,271,000		671,000	600,000		
Reach No. 3, Transmission Main (Homestead AFB)	Nov. '72	Oct. '73	665,000	366,000			300,000	66,000	
2. Cutler Ridge Interceptor Sewer	July '71	June '72	545,000	300,000		300,000			
3. Eureka Drive Interceptor Sewer, including pumping stations and system modifications	July '71	March '72	1,060,000	583,000	$ 100,000	483,000			
B. Sewage Treatment Facilities	July '71	Oct. '72	10,505,000	5,777,000		2,000,000	3,000,000	777,000	
C. Deep-Well Injection Projects	July '71	Feb. '72	4,000,000	2,200,000	400,000	550,000	550,000	550,000	150,000
D. Miscellaneous Projects	Aug. '73	July '74	2,000,000	1,100,000				1,100,000	
E. Land Acquisition	Aug. '74	July '75	2,000,000 812,000	1,100,000					1,100,000
TOTALS			$26,521,000	$14,140,000	$ 500,000	$4,904,000	$4,993,000	$2,493,000	$1,250,000

FUNDING SCHEDULE - CENTRAL DISTRICT

PROJECTS ELIGIBLE FOR FEDERAL FUNDING (PL 84-660)

Projects	EPA Offer By	Funding By	Estimated Proj. Cost	Grant Amount	Federal Funding - Fiscal Year 1971-72	1972-73	1973-74	1974-75	1975-76
A. Kendall Drive Interceptor Sewer Transmission Main	July '71	July '71	$1,395,000	$ 767,000	$ 500,000	$ 267,000			
B. Miscellaneous Projects	Aug. '73	July '74	2,000,000	1,100,000				$1,100,000	
	Aug. '74	July '75	2,000,000	1,100,000					$1,100,000
TOTALS			$5,395,000	$2,967,000	$ 500,000	$ 267,000		$1,100,000	$1,100,000

FUNDING SCHEDULE - NORTH DISTRICT

PROJECTS ELIGIBLE FOR FEDERAL FUNDING (PL 84-660)

Project	EPA Offer By	Funding By	Estimated Proj. Cost	Grant Amount	Federal Funding - Fiscal Year 1971-72	1972-73	1973-74	1974-75	1975-76
A. Sewage Transmission Facilities									
1. Transmission system from Sunny Isles STP	April '74	Jan. '75	$ 435,000	$ 239,000	$ 160,000	$ 79,000			
2. Transmission system from Andover STP	July '71	May '72	755,000	415,000	200,000	215,000			
3. Transmission system from Riverdale STP	July '71	May '72	773,000	425,000	200,000	225,000			
4. Transmission System from Golden Isles STP	July '71	Aug. '72	1,552,000	854,000	600,000	254,000			
5. Transmission System from Miami Beach	Dec. '72	March '74	5,434,000	2,989,000			$ 900,000	$1,500,000	589,000
6. Miami Gardens Drive Interceptor Sewer	July '71	Oct. '72	1,705,000	938,000		500,000	438,000		
B. Sewage Treatment Facilities	July '71	April '73	42,867,000	23,577,000		4,000,000	9,000,000	7,000,000	3,577,000
C. Ocean Outfall	Feb. '73	May '74	6,775,000	3,726,000			300,000	3,100,000	326,000
D. Miscellaneous Projects	Aug. '73 Aug. '74	July '74 July '75	2,000,000 2,000,000	1,100,000 1,100,000				1,100,000	1,100,000
E. Site Acquisition			4,000,000						
TOTALS			$68,296,000	$35,363,000	$1,160,000	$5,273,000	$10,638,000	$12,700,000	$5,592,000

FUNDING SCHEDULE - ALL DISTRICTS

PROJECTS ELIGIBLE FOR FEDERAL FUNDING (PL 84-660)

Projects	EPA Offer By	Funding By	Estimated Proj. Cost	Grant Amount	Federal Funding - Fiscal 1971-72	1972-73	1973-74	1974-75	1975-76
SUMMARY BY DISTRICT									
A. North District	N/A	N/A	$ 68,296,000	$ 35,363,000	$ 1,160,000	$ 5,273,000	$ 10,638,000	$ 12,700,000	$ 5,592,000
B. Central District	N/A	N/A	5,395,000	2,967,000	500,000	267,000		1,100,000	1,100,000
C. South District	N/A	N/A	26,521,000	14,140,000	500,000	4,904,000	4,993,000	2,493,000	1,250,000
TOTALS			$ 100,212,000	$ 52,470,000	$ 2,160,000	$ 10,444,000	$ 15,631,000	$ 16,293,000	$ 7,942,000

Roy Barden

MR.BARDEN: And I wish to give you a brief report on the long-range planning program which is identified in the Water Pollution Abatement Program. The Planning Department will work with the county departments, the Federal and State agencies, which are responsible for water pollution abatement planning, as well as consultants in carrying out the preparation of the fully developed water pollution abatement plan which includes an update of the 1961 Water Plan as well as an update of the 1961 Sewer Plan. And we will bring back to you from time to time progress reports on the long-range comprehensive planning for the fully developed water and sewer plan which is called for by 1971, December 2.

MR. WHITE: Comments, questions?

MR. TRAINA: Mr. Barden, we have heard a number of comments today regarding coordination with local groups in development of this plan. You do fully intend and implement a coordination procedure so that everyone affected by your planning efforts does become involved in the process?

MR. BARDEN: Yes, we do. And the Planning Department is assuming the responsibility of coordinating the planning of the water and sewer master plan update along with other sytems planning the Planning Department is responsible for. The long-range planning program identified as Water Pollution Abatement Program calls for an intergovernmental coordination agency or committee to be established to work with staff consultants in development of the recommendations which will eventually come before this conference, conferees as well as the elected officials of each of the governmental agencies.

The Interagency Coordinating Committee includes the 10 or more county departments which are responsible for work along the element as well as the Florida Board of Health, Florida Department of Air and Water Pollution Control, Center and Southern Flood Control District, the EPA, Water Quality Administration, USGS, Corps of Engineers, the Department of the Interior, Water Resources Division, and those municipalities in Dade County which have a sewage disposal system. And these include Miami, Miami Beach, North Miami, North Miami Beach, and Homestead. This will be the Interagency Coordinating Committee that will work with the Technical Committee which was established by this conference.

MR. TRAINA: Do you plan to establish that committee soon?

MR. BARDEN: It has been established under order, not only in the planning program, but recently following the grant execution between the county and EPA by the Dade County Manager through a letter which I have here which will be going out this coming week to each of the agencies identified in the Interagency Coordinating Committee.

MR. TRAINA: Thank you.

MR. WHITE: Any other comments or questions?

(No response.)

Thank you, Mr. Barden.

MR. REDFORD: The last person on our list for today is Werner Grune.

He doesn't seem to be here.

MR. WHITE: If I might, are there any other people other than Mr. Loebl who would like to make a statement?

(No response.)

Mr. Loebl, would you come up.

MR. LOEBL: I will be as brief as I can.

Just in reference to the things Dennis Carter brought up--one in response to Mr. Traina's question about whether or not the county would accept treated sewage, he said of course not. But I think that although I am not an engineer, my recollection is that in the calculation of the quantities and sewage and treatment and so forth, I believe that if you mix treated sewage with raw sewage in the activated sludge process, you would then mess up the balance in your plant. And I don't think you would wind up -- I think that even that could create problems. So I just want to call that to your attention.

MR. TRAINA: It has been called to my attention.

Burton B. Loebl

MR. LOEBL: As peculiar as it sounds, that is my understanding in the activated sludge process. In other words, for example, if you get infiltration of groundwater into your collection system and into your treatment plant which is actually freshwater, this creates problems in your treatment process. So that actually there are times when in the treatment of sewage too much well-treated or freshwater can even give you problems.

But passing that and pressing on to something I consider much more pressing in regard to Mr. Carter's statement about the fact that they have, and this is what I have been referring to, according to their Master Plan now fixed on a site location. And he says you have no jurisdiction. Well, you may not have jurisdiction on that. And I am not going to get into that, although I think you do. But certainly the whole primary question of the voluntary entrance into a regional plan by the various governmental bodies is a voluntary one. And certainly the conferees in making their decision as to how equitable the overall position is and how much pressure they want to put on the various governmental groups is within your purview.

And I say to you that my City Council has voted and acted as opposing this site location. It is a horrible site.

And when you talk about delays, I can assure you that if I am advised by my City Council to oppose it through the courts, you may be assured of 3-year delay minimum. So this is not going to help anybody.

And, secondly, I would point out to you as I said before, the decision on this site was one of expedience. And as long as he has gotten into it, he says that the City of Miami agreed to it and the Interama Authority and the State agency. Just to advise you gentlemen of what the situation is, the City of Miami has bonds, the city of North Miami had a bond issue, to go in and bail out a failing financial situation over there. The bonds are now in default, being foreclosed before a circuit judge. The circuit judge gave them time limitations in which to come up with money to get the bonds out of default.

This is a method whereby the county is now going to buy this property to get the bonds out of default which sounds good, but without consultation with us, without discussion with us, they have decided on a site location at the exact southeast border of the city of Miami Beach. And I assure you this is not acceptable to the city.

And if they want to get into an overall regional planning, it requires regional cooperation and regional discussion. And to take fixed positions on something as vital as this before you ever get off the ground, that is not cooperation, gentlemen.

MR. WHITE: We understand your point.

Any questions or comments?

MR. REDFORD: I would make one comment foolishly. I would like to say that there seems a certain inconsistency in the position of wishing to jump on this transmission line immediately and discharge raw and yet threaten to hold up the siting of this thing for 3 years so that it will be dumped most certainly raw for 3 years.

And I would rather say that I think in this case we have been hearing this city's talk about 3 or 4, it is going to be bad in any case. It just seems to me that the city is somewhat inconsistent in this matter because the polluters are talking about money and what is feasible. I am talking about pollution. And I just don't want to see this thing tied up 3 years with raw sewage going out, including North Miami Beach, considerable raw industrial sewage going out into the Atlantic Ocean.

MR. LOEBL: Mr. Redford, I respectfully submit you are confused. Mr. Carter said he wouldn't build his plant that he has already got designed because he has now picked a new site to build another plant. And we are saying forget that new site and build a plant and treat this sewage now and not wait. He is telling you he doesn't want to build a plant because he is looking at a new site. So there would be no confusion on that.

MR. WHITE: Thank you. We understand.

Are there any other people in the audience who would like to make a statement?

(No response.)

Seeing no hands, Mr. Traina, I believe, has one comment.

MR. TRAINA: One point for the record. In the Federal report that was entered this morning, I just wanted to make one correction. On page 11, Conclusion No. 2, that should read 62 percent of the municipal waste volume from Dade County receives inadequate treatment and 36 percent receives no treatment.

In the way of clarification, the total is the same, but the relative numbers have been changed.

That's all, Mr. Chairman.

MR. WHITE: Thank you, Mr. Traina.

With respect to adjournment, the conferees plan to go into executive session this evening. We will come back at 10 o'clock in the morning to read our Conclusions and Recommendations. And to keep the record straight, I want to point out that the court reporter will not be here; that we will leave the record open, submit the Conclusions and Recommendations and final statement to her, and wrap it up. It will be a very short session in the morning at 10 a.m. here in this room, lasting probably 15 to 20 minutes.

With that, we will stand adjourned until tomorrow morning.

(Whereupon, at 5:25 p.m., the meeting adjourned.)

(There follow the Conclusions and Recommendations of the conferees:)

CONCLUSIONS AND RECOMMENDATIONS
OF THE CONFEREES
(THIRD SESSION)
POLLUTION OF THE NAVIGABLE WATERS
OF
DADE COUNTY
AND
TRIBUTARIES, EMBAYMENTS, AND COASTAL WATERS
(FLORIDA)

July 2-3, 1971

The conferees have reviewed the data and information presented in the two prior sessions of the Federal-State enforcement conference, the conclusions and recommendations of said sessions, and the data and information presented at the third session of the conference, and unanimously agree on the following conclusions:

1. Pollution of the navigable waters in and adjacent to Dade County, Florida, including the Atlantic Ocean, Biscayne Bay, and tributaries thereto, which endangers health and welfare of persons, is occurring and is subject to abatement under the Federal Water Pollution Control Act. This pollution is caused by discharges from numerous municipal, domestic, and industrial sources within Dade County.

2. Measures taken to abate this pollution remain inadequate.

3. The nature of delays being encountered in pollution abatement are: complexity of the problem; lack of an adequate financing plan; lack of coordinated effort between the various units of local government to meet the pollution problem and abate it.

4. The Metropolitan Dade County Commission's amended interim regional plan is acceptable in principle as a first step in the development of a master plan for water quality and water use manage-

ment for Dade County. However, the interim plan is lacking in an adequate time schedule for construction arrangements for financing, and consideration of water reuse.

5. The program for the elimination of existing septic tanks and the control of new septic tank installations by Dade County is unsatisfactory. The conferees support the plan of the Dade County Pollution Control Officer to study the effects of septic tank effluent on the quality and quantity of ground water.

6. Waste discharges from vessels used as domiciles or business establishments continue unabated, and local regulations for its control are unsatisfactory.

7. The actions taken by the U.S. Army Corps of Engineers to remove abandoned hulks, debris, and other obstructions to navigation in the Miami River are satisfactory.

8. The conferees note with utmost concern and regret that the Metropolitan Dade County government has unilaterally negotiated contracts with private and public utilities that have substituted the discharge of untreated sewage to the ocean for the discharge of treated sewage to the inland canal system. Such developments are retrogressive. Also, the County's decision to forego the addition of primary treatment at its North Dade Plant will result in a breach of an agreement between Federal governmental agencies which was predicated on such a program.

9. Although the enforcement efforts of the Dade County Pollution Control Officer have resulted in improvement of water

quality in several of the inland waterways in the county, many of the minor waste water treatment plants are still in violation of applicable State and County standards.

Based on the above conclusions, the conferees unanimously recommend the following:

1. By January 1, 1974, a regional collection and treatment system to serve all waste sources in Dade County shall be in operation. This system shall provide secondary treatment and disinfection with a biochemical oxygen demand and suspended solids removal efficiency of not less than 90 percent; and shall provide for discharge of such treated effluent to the ocean at the edge of the Gulf Stream, except where alternative disposal of such effluents may be acceptable as discussed in the following recommendation.

2. The Metropolitan Dade County Commission shall present to the conferees, through the State of Florida, a completed interim plan for abatement of pollution from all waste sources in Dade County by November 1, 1971. This plan shall be in a form acceptable for certification under applicable State and Federal laws and regulations. Further, the plan shall include: (a) a time schedule for construction to meet the deadlines established by the Federal-State conferees; (b) an equitable arrangement for financing; (c) a schedule for the preparation of preliminary plans and specifications, preparation of final plans and specifications, award of contracts, and initiation and operation of remedial facilities; (d) consideration of alternate effluent disposal schemes for the southern portion of Dade County.

giving special attention to studies conducted and reported to the conferees by the City of Homestead; and (e) a conceptual plan for the reuse of treated waste effluents throughout the county. The County should also encourage public and private utilities to conduct research in the area of water recharge and reuse.

3. The cessation of all waste discharges into the inland canal system of Dade County shall be accomplished as rapidly as possible but not later than January 1, 1973.

4. Dade County shall enforce the existing regulations concerning restrictions on septic tanks until the study referred to in conclusion number five has been completed and new regulations are promulgated.

5. Additional waste discharges to Lower Biscayne Bay, including the Biscayne National Monument, and its tributaries shall be prohibited. This same prohibition shall apply to discharges to canals in Dade County which drain to the Everglades National Park. Removal of existing municipal and industrial waste discharges from these waters shall be accomplished as rapidly as possible but not later than January 1, 1974.

The U.S. Geological Survey and the Environmental Protection Agency shall immediately establish a monitoring program of the General Waterworks deep well system at the Snapper Creek Plant. The information obtained from the operation of this deep well injection system shall be provided to the County for its guidance in developing an effluent disposal scheme for the southern part of the county as set forth in recommendation number two.

6. All wastes from vessels used as domiciles or business establishments shall be discharged to onshore facilities. The County shall present to the conferees by November 1, 1971, a plan for meeting this requirement. The County's plan must include an implementation schedule for meeting deadlines established by the Federal vessel sanitation standards when promulgated.

7. Until such time as the minor waste water treatment plants in the county are connected to an acceptable regional collection and treatment system, they shall meet the following requirements:

(a) Provide for leveling peak flows;

(b) Provide multiple level digestion outlets;

(c) Provide drains on all tanks to facilitate cleaning;

(d) Provide and maintain reliable chlorine dosing equipment

(e) Provide and maintain flow meters;

(f) Prohibit submersible pumps for feeding pressure filters;

(g) Have licensed operators or be operated by licensed consultants; and

(h) Collect and report operational data to the Florida Department of Air and Water Pollution Control.

The Dade County Pollution Control Officer shall continue to monitor the operation of these plants and enforce these requirements as necessary.

8. The Environmental Protection Agency shall complete its inventory and analyses of industrial sources and report its findings

to the conferees and the Dade County Pollution Control Officer by September 1, 1971. The Dade County Pollution Control Officer shall immediately act on reported violations of State and County standards and report to the conferees his progress in correcting these violations by November 1, 1971.

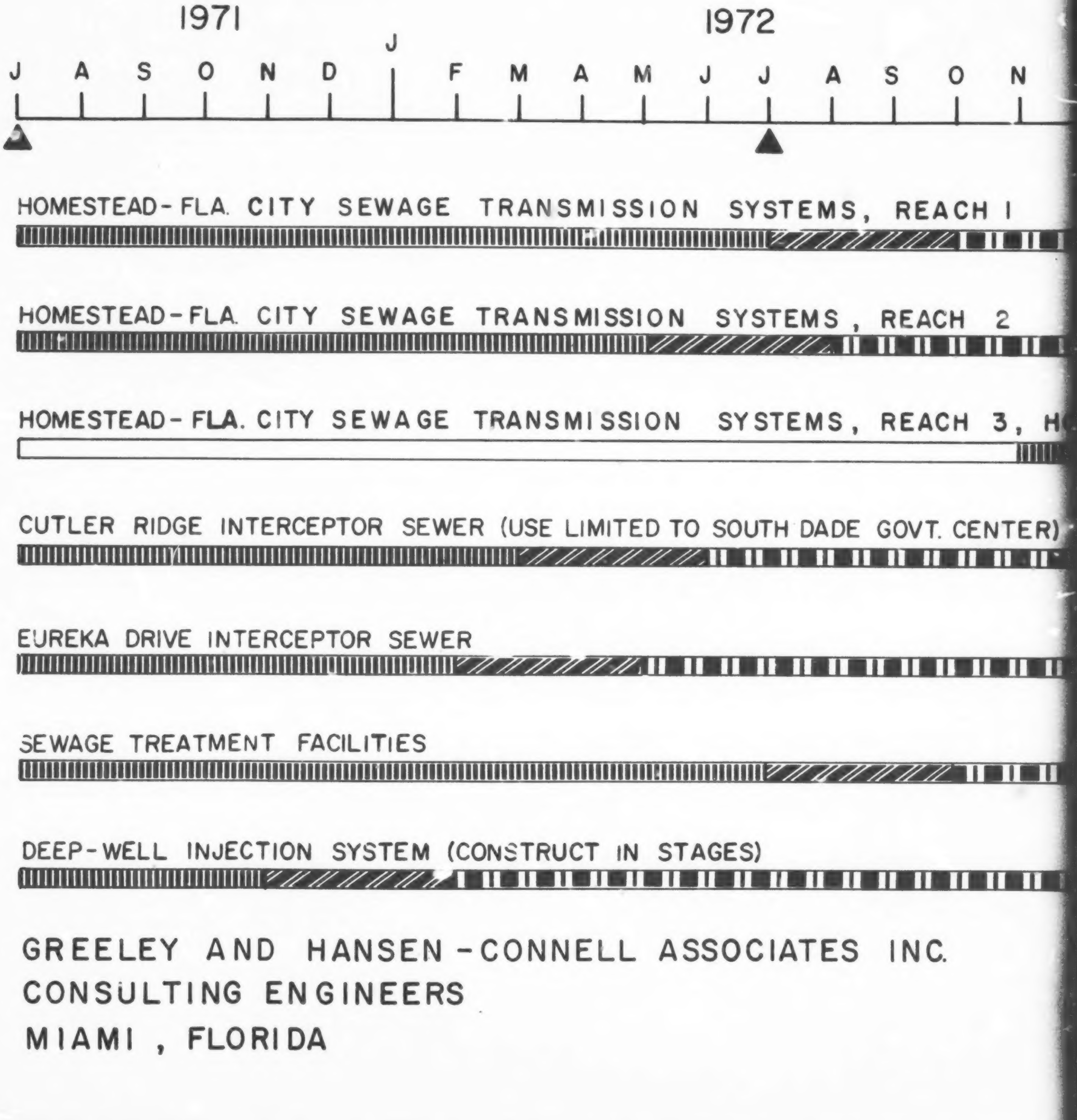
9. The technical committee established pursuant to the recommendations of the first session of the conference shall report to the conferees its progress and future plans for developing a regional water quality management plan by November 1, 1971.

10. The Environmental Protection Agency shall conduct studies of existing ocean outfalls and the coastal zone to develop and recommend detailed ocean disposal criteria. Preliminary criteria shall be reported to the conferees by July 1, 1972.

11. Dade County shall provide plans for the immediate installation of primary treatment on the North Dade transmission line to the Florida Department of Air and Water Pollution Control and the Environmental Protection Agency by August 6, 1971 (primary treatment being defined as essentially complete removal of floatable and settleable solids). Also by August 6, 1971, the Dade County Commission shall show cause to the State and Federal agencies why it cannot renegotiate phase out contracts on waste water plants now providing treatment to continue such treatment at no additional cost to the user until the northern regional treatment plant is operational. No future phase out contracts shall be negotiated by the County without prior approval of the conferees.

☆ U. S. GOVERNMENT PRINTING OFFICE : 1971 O - 447-286

SCHEDULE FOR RECOMMENDED IMMEDIATE PRO
SOUTH DISTRICT – METROPOLITAN DADE COUNTY
(1971 Through 1974)



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CONSULTING ENGINEERS
MIAMI, FLORIDA

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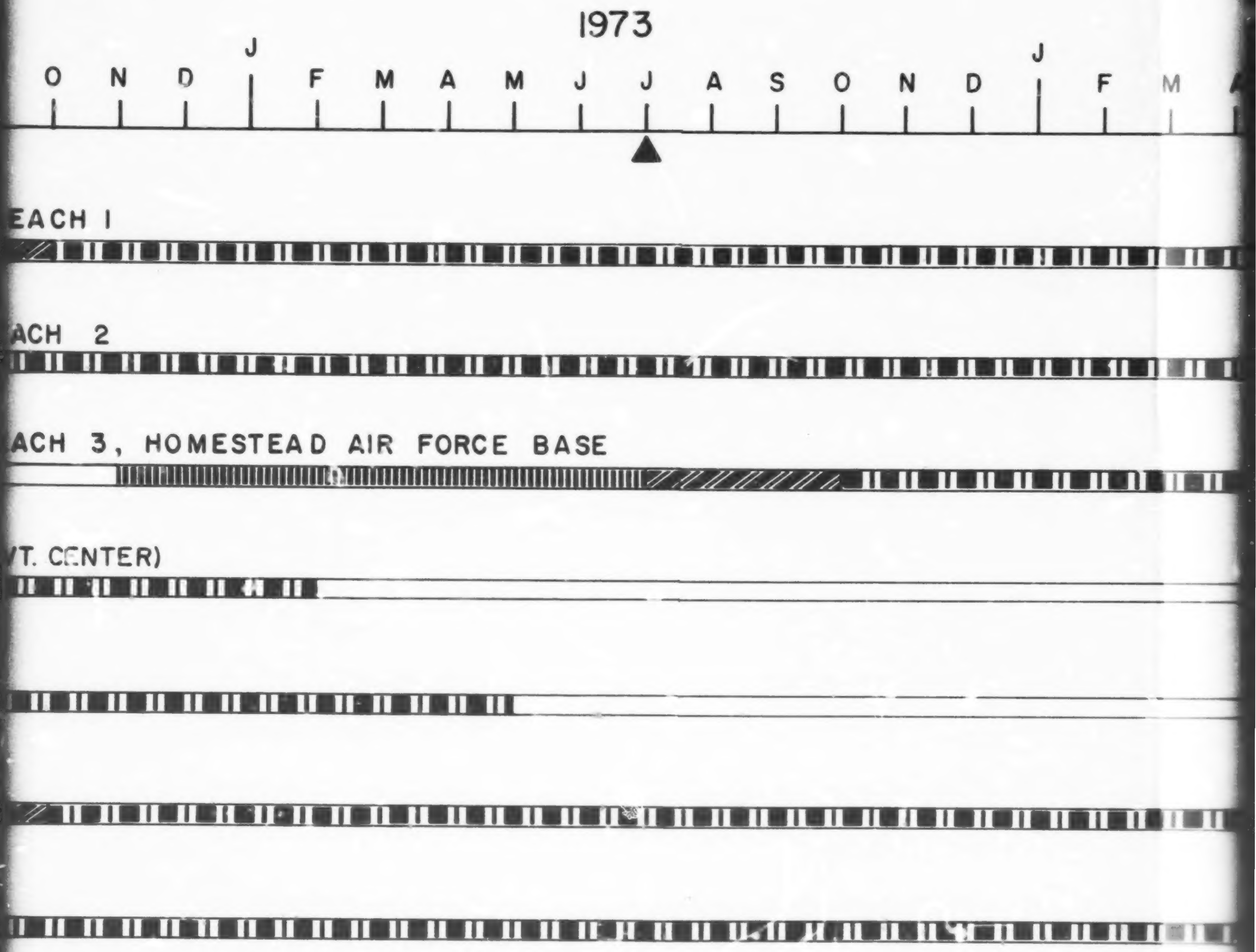

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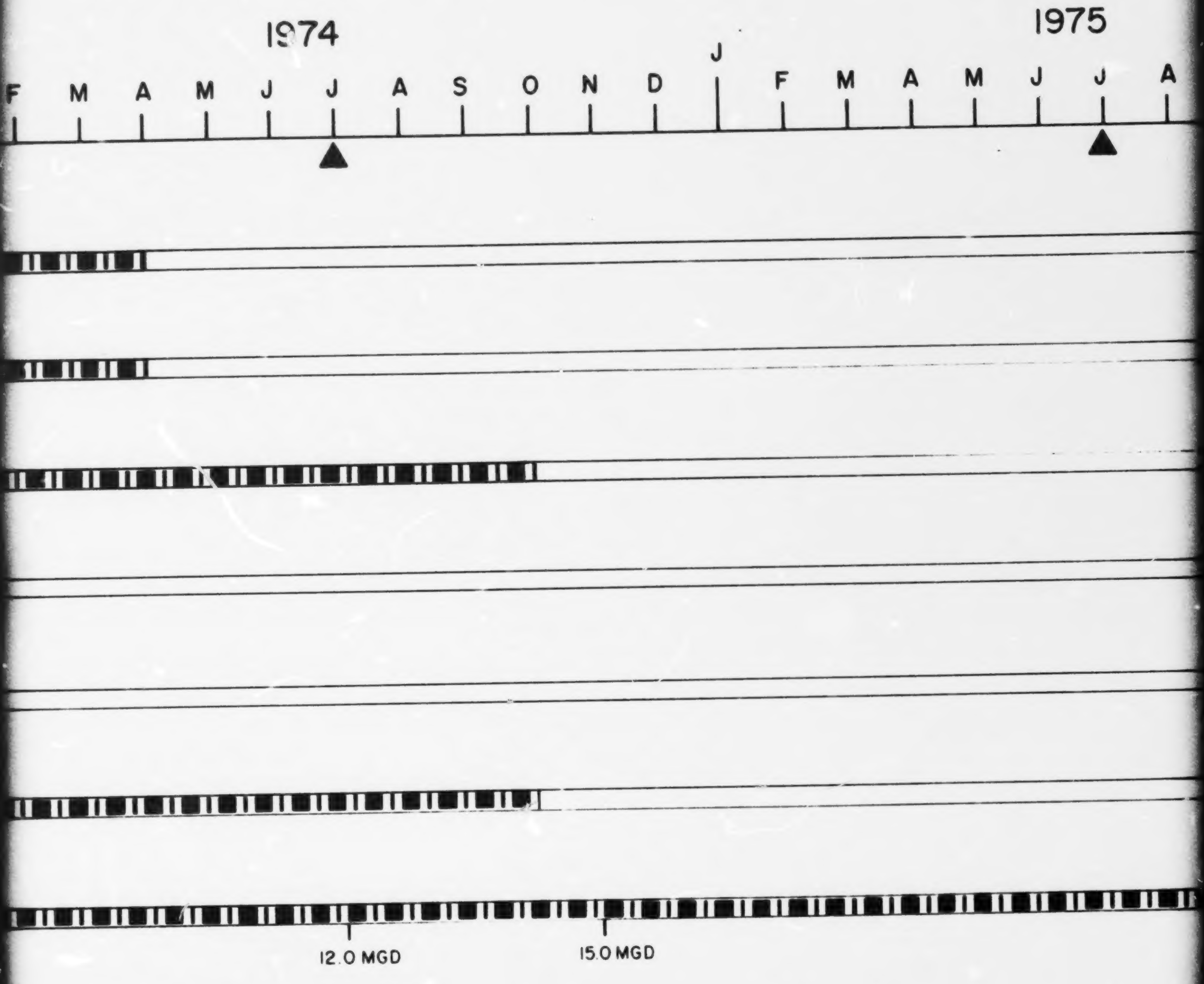
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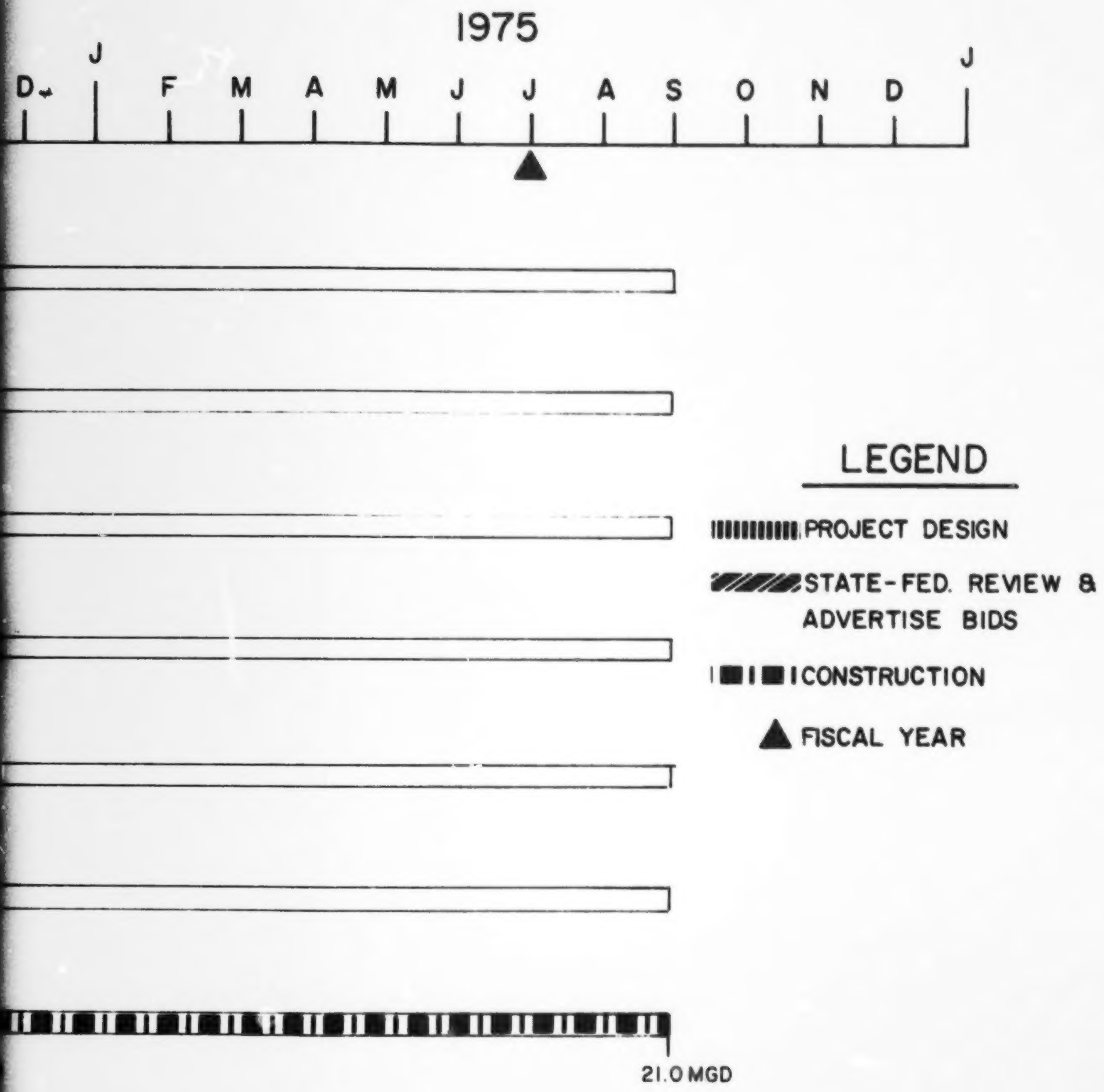
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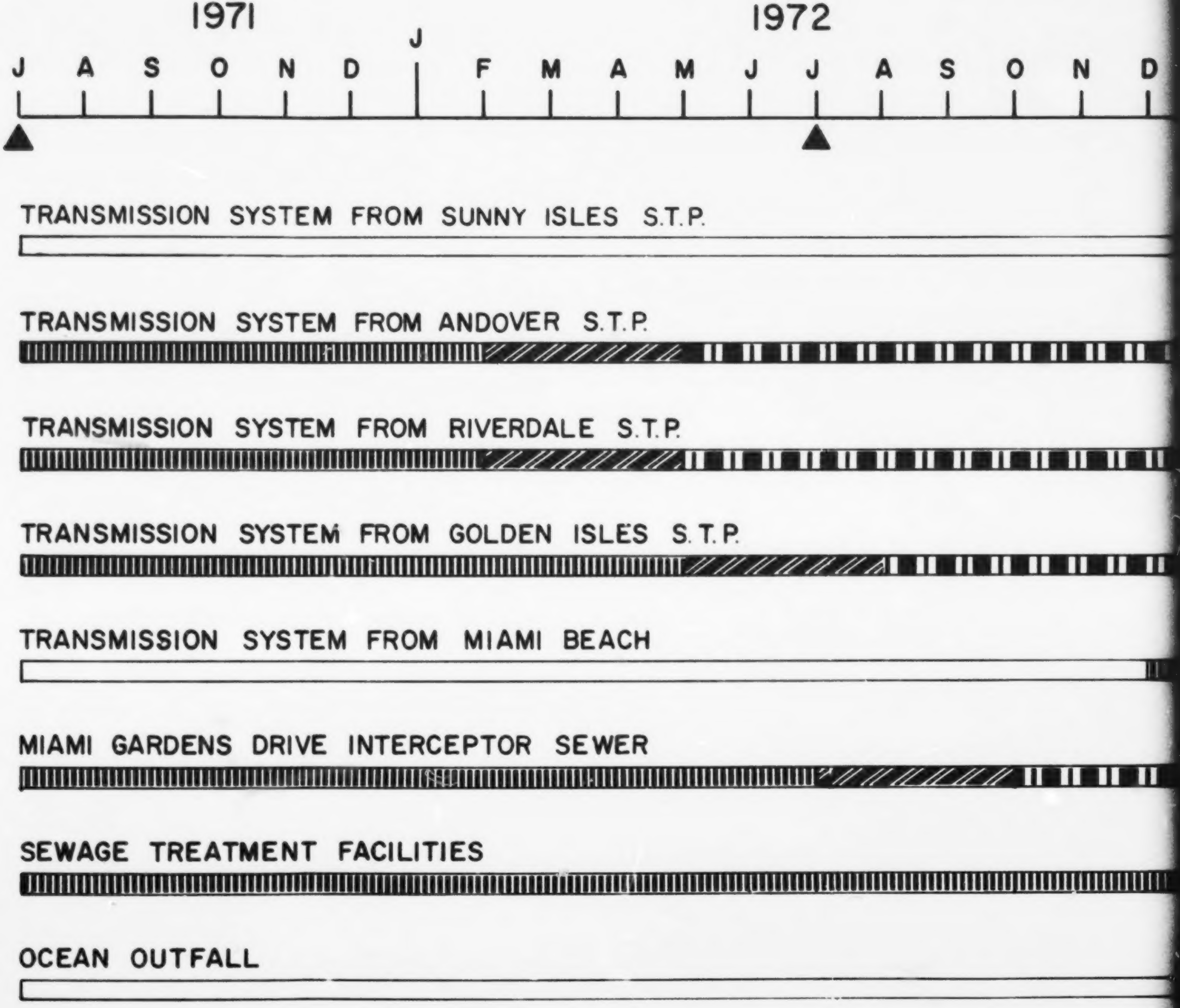
(1971 Through 1974)



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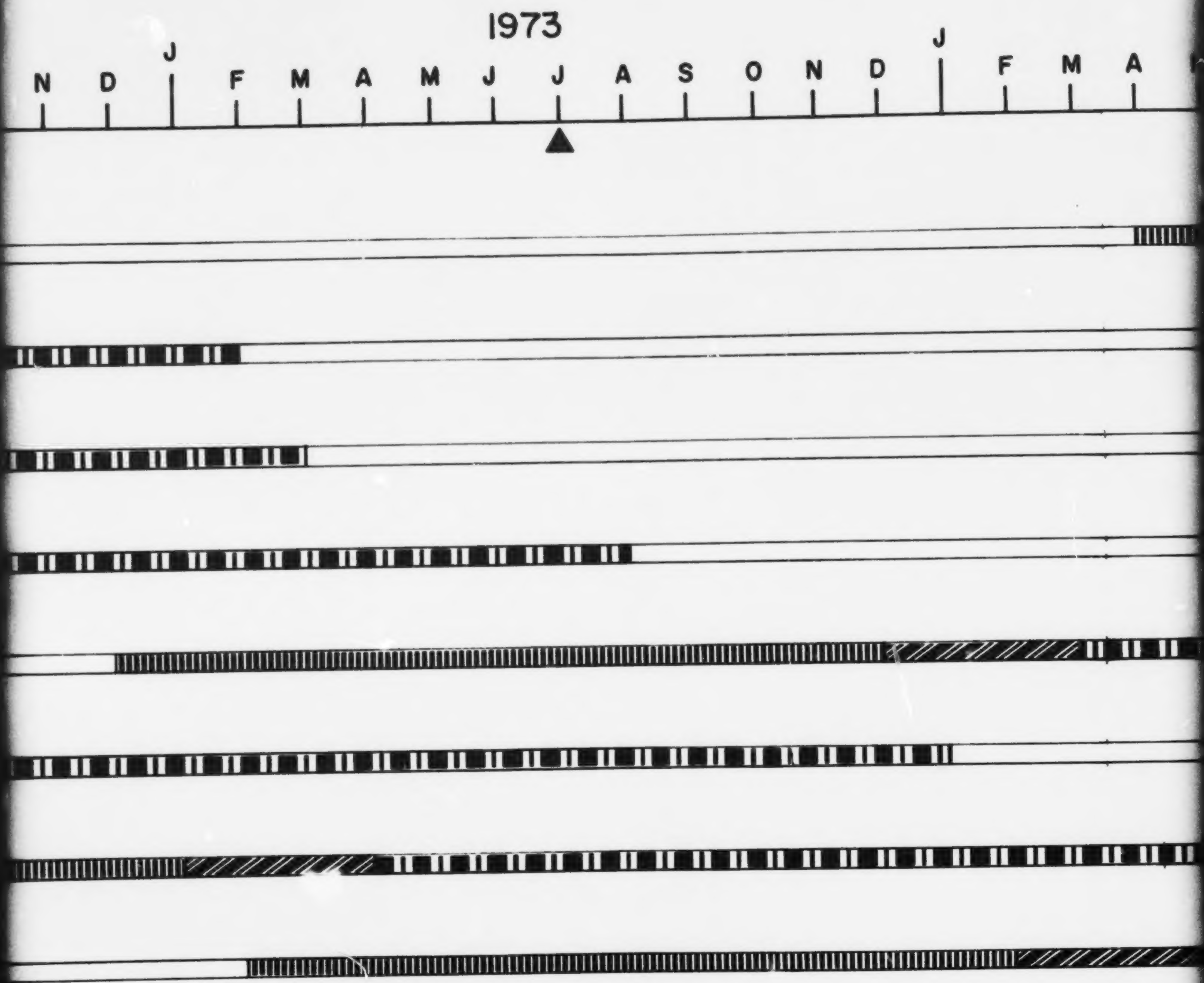

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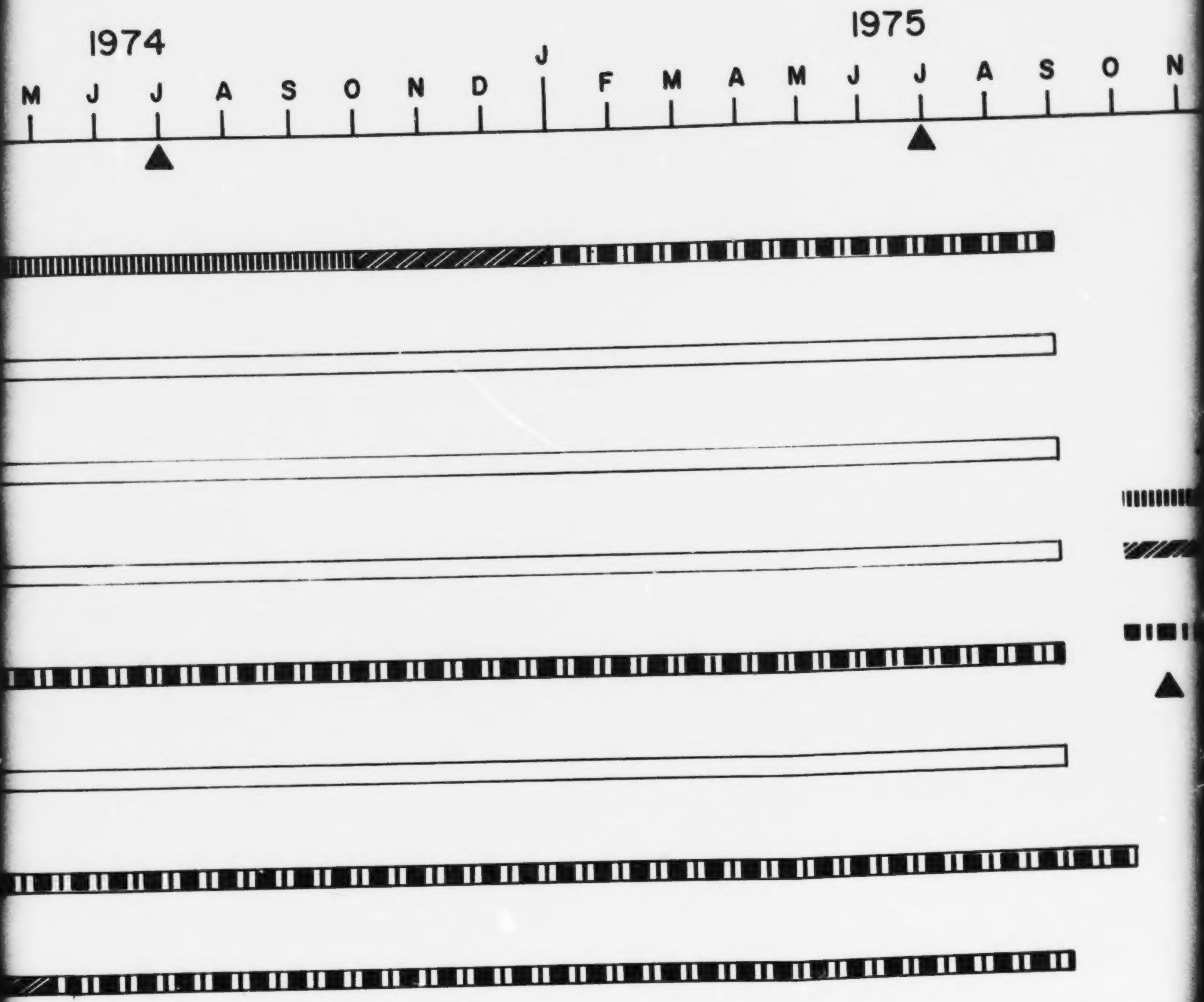
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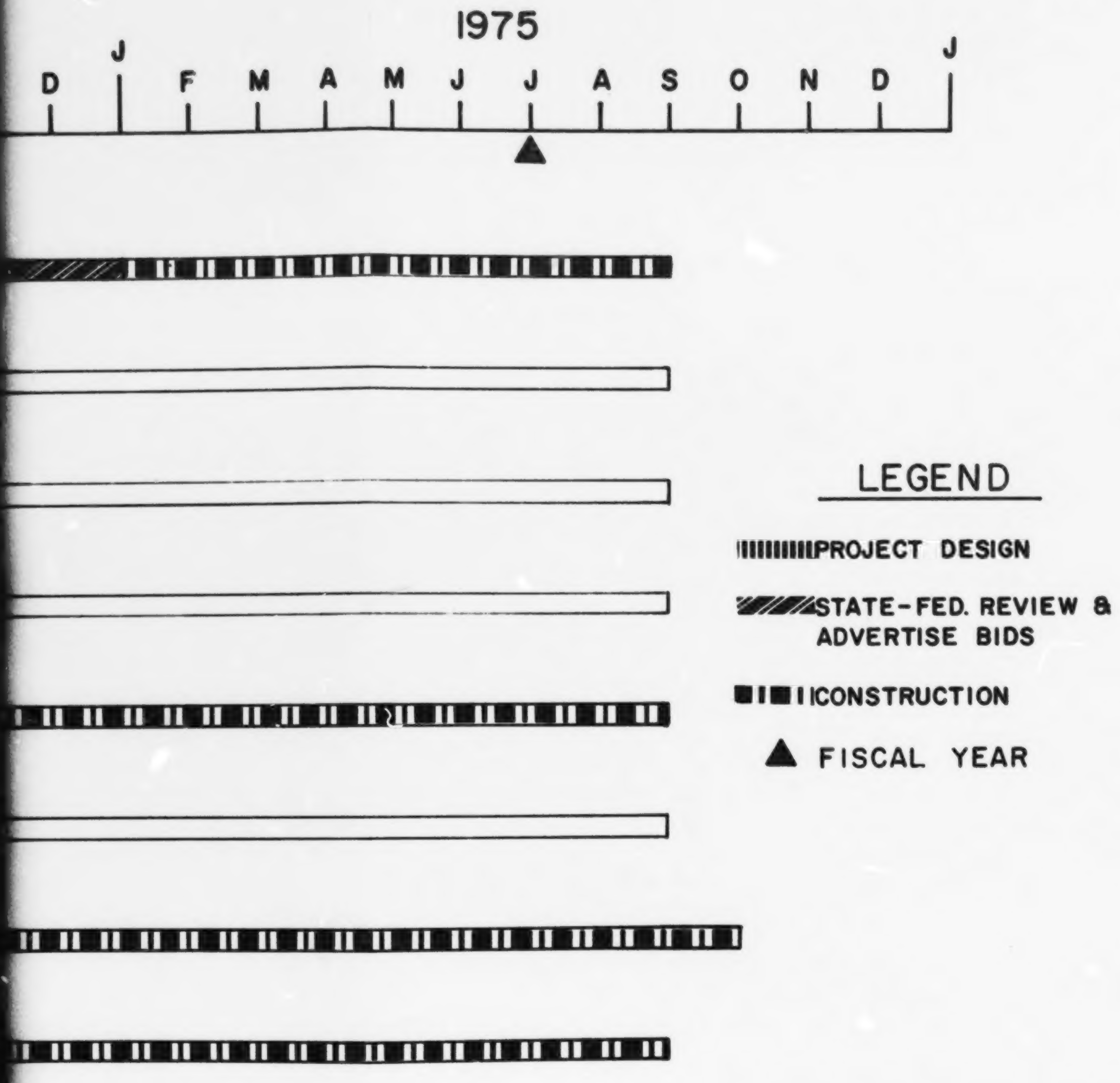
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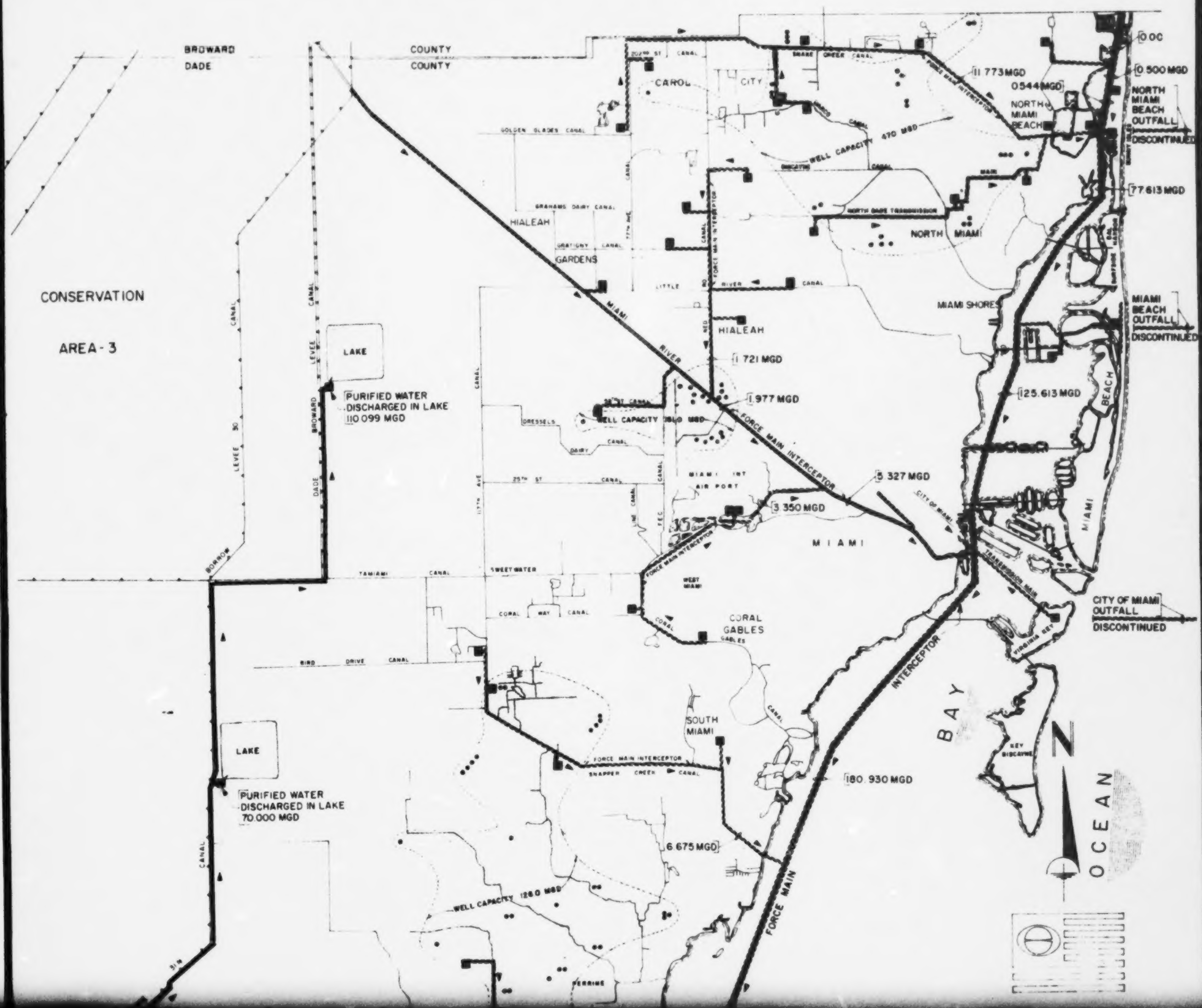
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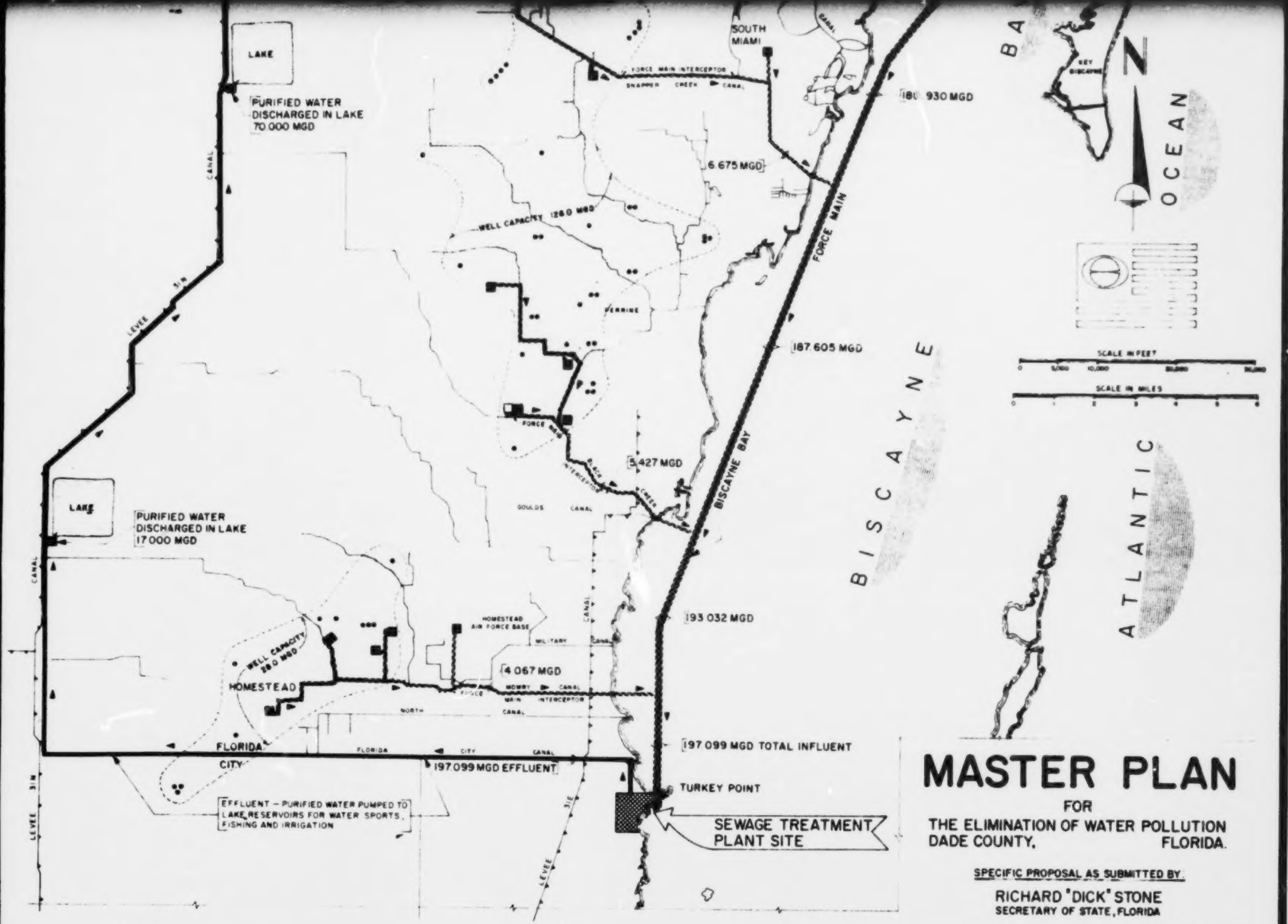
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BISCAYNE BAY
ATLANTIC
LAKE
PURIFIED WATER DISCHARGED IN LAKE 17.000 MGD
GOULDS CANAL
CANAL
LEVEE 31N
193.032 MGD
HOMESTEAD AIR FORCE BASE
MILITARY CANAL
WELL CAPACITY 28.0 MGD
4.067 MGD
HOMESTEAD
FORCE
MOWRY CANAL
MAIN INTERCEPTOR
NORTH CANAL
197.099 MGD TOTAL INFLUENT
FLORIDA CITY
FLORIDA CITY CANAL
197.099 MGD EFFLUENT
TURKEY POINT
EFFLUENT – PURIFIED WATER PUMPED TO LAKE RESERVOIRS FOR WATER SPORTS, FISHING AND IRRIGATION
SEWAGE TREATMENT PLANT SITE
LEVEE 31E
LEVEE 31N

MASTER PLAN

FOR

THE ELIMINATION OF WATER POLLUTION
DADE COUNTY, FLORIDA.

SPECIFIC PROPOSAL AS SUBMITTED BY.

RICHARD "DICK" STONE
SECRETARY OF STATE, FLORIDA

DESIGNED, ENGINEERED AND PREPARED BY:

SASNETT ENGINEERING, INC.
AND ASSOCIATES
DUPONT PLAZA CENTER BUILDING, MIAMI, FLORIDA

ORGANIZATION OF STUDIES

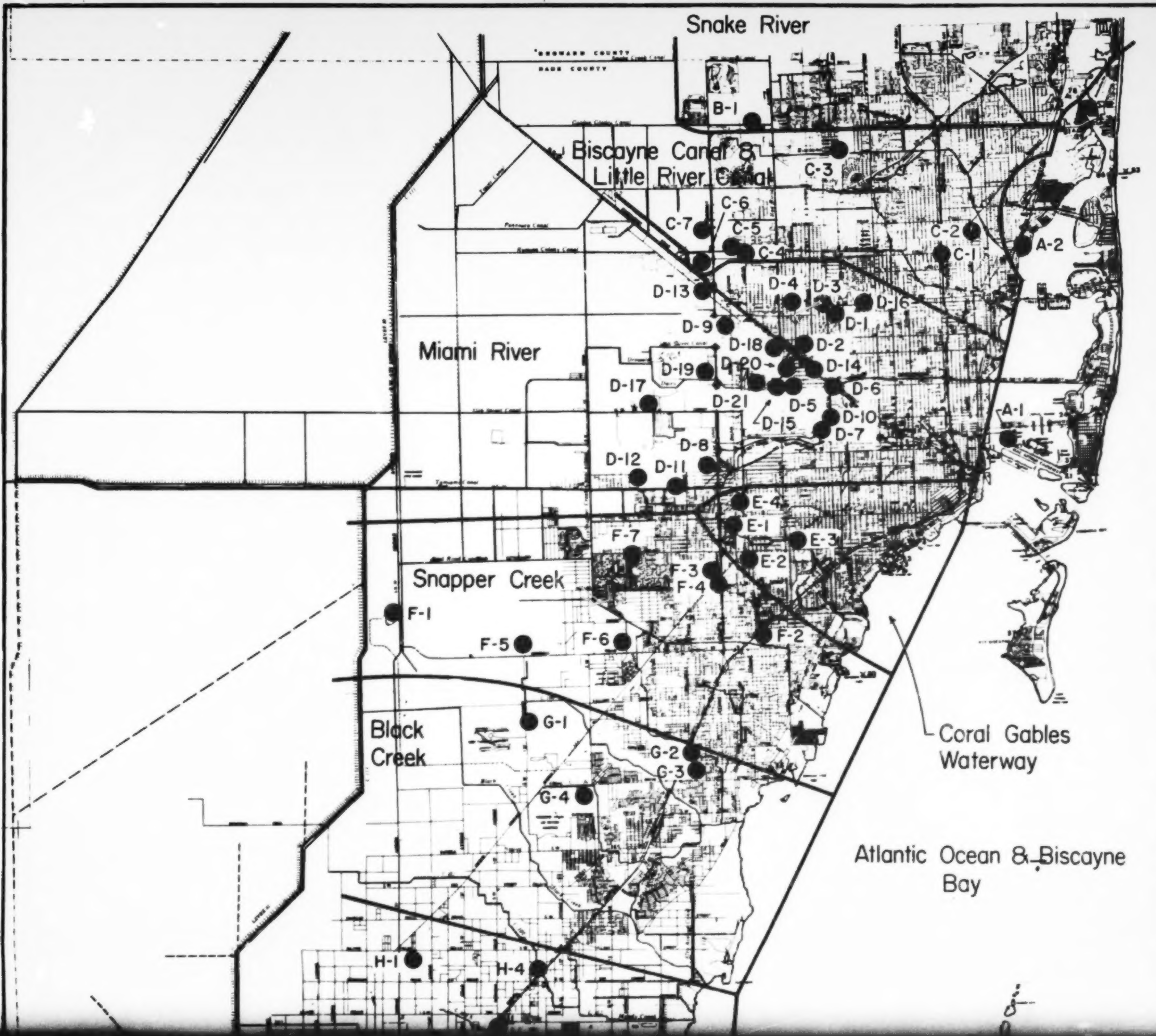
LEGEND

MGD - MILLION GALLONS PER DAY (DESIGNED CAPACITY)
► - FLOW DIRECTION
■ - EXISTING SEWER PLANTS DISCONTINUED (PUMPING STATIONS) (PARK AREAS)
■ - EXISTING PUMPING STATION (MIAMI BEACH)
▬ - BISCAYNE BAY FORCE MAIN INTERCEPTOR
▬ - CANAL AND RIVER FORCE MAIN INTERCEPTORS
▬ - EFFLUENT – PURIFIED WATER – FORCE MAIN TO LAKE RESERVOIRS
• - EXISTING WELLS
■ - PUMPING STATION – PURIFIED WATER DISCHARGED IN LAKE

(PHASE NO.1)

REGIONAL ENVIRONMENTAL STUDY PLAN

DATE 2/16/71


Snake River
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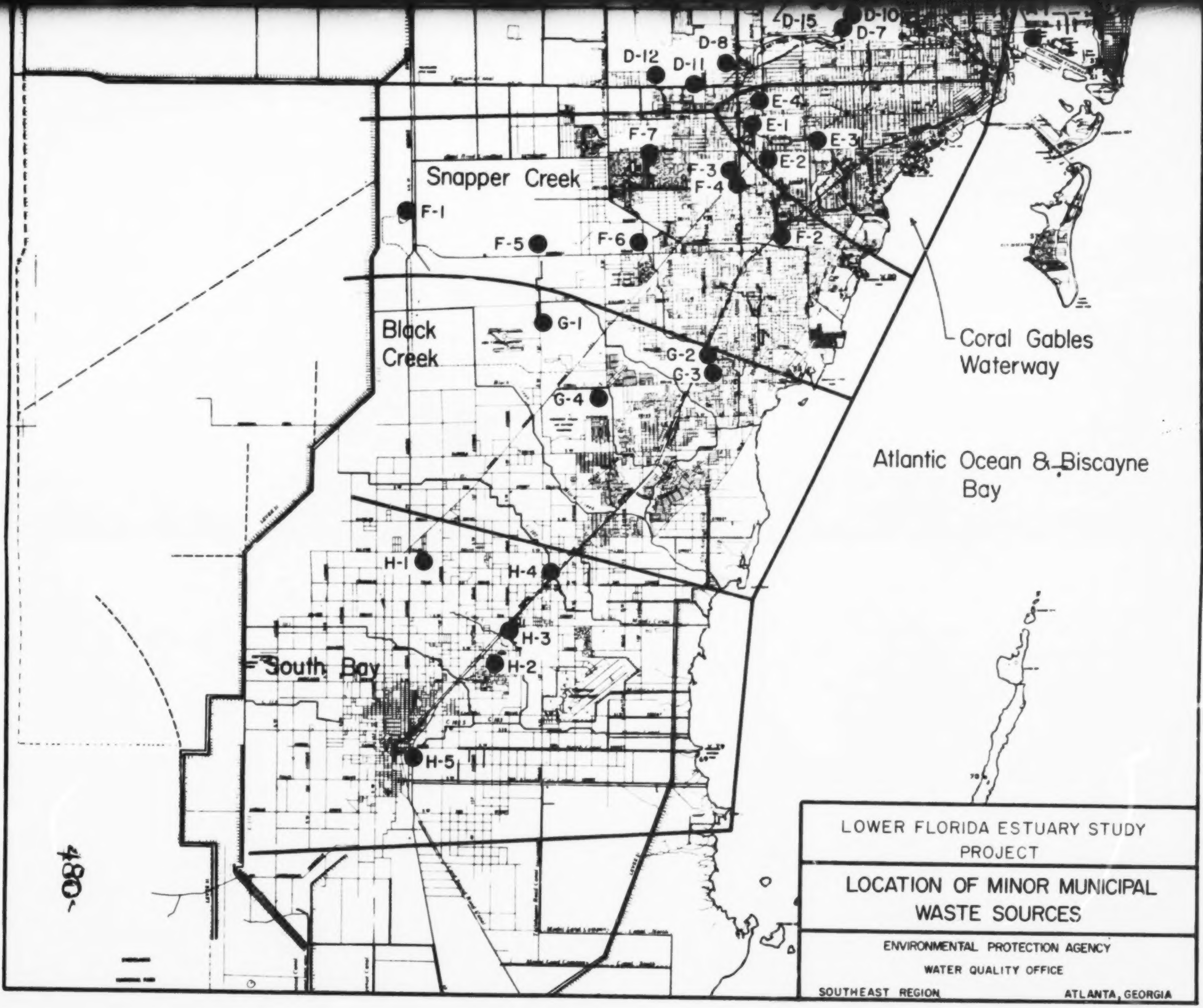
F-7
E-2
F-3
F-4
Snapper Creek
F-1
F-6
F-5
F-2
G-1
Black
Creek
G-2
G-3
Coral Gables
Waterway
G-4
Atlantic Ocean & Biscayne
Bay
H-1
H-4


D-15
D-10
D-7
D-8
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D-11
E-4
E-1
E-3
E-2
F-7
F-3
F-4
Snapper Creek
F-1
F-5
F-6
F-2
Black Creek
G-1
G-2
G-3
G-4
Coral Gables Waterway
Atlantic Ocean & Biscayne Bay
H-1
H-4
H-3
H-2
South Bay
H-5

LOWER FLORIDA ESTUARY STUDY PROJECT

LOCATION OF MINOR MUNICIPAL WASTE SOURCES

ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY OFFICE
SOUTHEAST REGION ATLANTA, GEORGIA